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सत्यमेव जयते

भारत सरकार
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मैं, अधोहस्ताक्षरी जो पेटेंट अधिनियम, 1970 की धारा 73(3) के तहत महानियंत्रक एक्स्व,
अिकल्प एवं व्यापार चिह्न की ओर से प्रमाणपत्र हस्ताक्षर व जारी करने के लिए प्राधिकृत अधिकारी हूँ,
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ions of Section 73(3) of the Patents Act, 1970, hereby certify that annexed hereto is
Copy of the document(s) as filed in connection with the following Patent Application:

क) आवेदन संख्या/a) Application Number: 202141009896

ख) फाइल करने की तारीख/b) Date of Filing: 09/03/2021

ग) अनुरोधित दस्तावेज़(जों) का नाम:

Name of the document(s) requested: Complete Specification

यह पत्र 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.

this 01st day of March 2022

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 (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)					
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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 (✓)	
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			Pin code	600 006

5. TITLE OF THE INVENTION

A Saddle-Type Vehicle

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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 country)

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: NOT APPLICABLE

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

12. DECLARATIONS

(i) Declaration by the inventor(s)

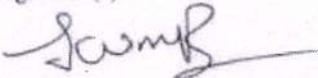
(In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

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

(a) Date 8 March 2021

(b) Signature(s)

(c) Name(s)

1. 

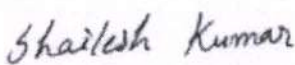
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RAJU

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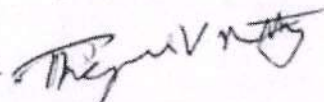
VAIDHEESWARAN RAMESH

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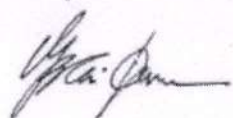
R DHILIP KUMAR

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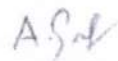
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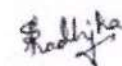
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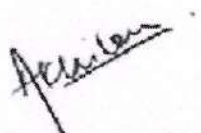
RAVIKUMAR GOKA BALU

7. 

A GOKUL

8. 

S RADHIKA

9. 

AKHILESH MANCHANDANI

(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~~/complete 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.
- ☒ 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).
- ☒ 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 we derive the title.
- ☒ 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 DD/MM/YYYY 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
Complete/ provisional specification)#	No. of pages 16		
No. of Claim(s)	No. of claims 24 and No. of pages 6		
Abstract	No. of pages 1		
No. of Drawing(s)	No. of drawings 11 and No. of pages 11		

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

(b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(c) Sequence listing in electronic form

(d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.

(f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability. (g) Statement and Undertaking on Form 3 (h) Declaration of Inventorship on Form 5 (i) Power of Authority

(g) Statement and Undertaking on Form 3

(h) Declaration of Inventorship on Form 5

(i) Power of Authority

Total fee is being paid via online payment mode.

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 9th day of March 2021

TVS MOTOR COMPANY LIMITED

By their Agent & Attorney



(Nikhil Ranjan)
of Khaitan & Co
Reg No IN/PA-1471

To
The Controller of Patents
The Patent Office, at Chennai

Note: -

- * Repeat boxes in case of more than one entry.
- * To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
- * Tick (✓)/cross (x) whichever is applicable/not applicable in declaration in paragraph-12.
- * Name of the inventor and applicant should be given in full, family name in the beginning.
- * Strike out the portion which is/are not applicable.
- * For fee: See First Schedule.

FORM 2
THE PATENTS ACT, 1970
(39 OF 1970)
&
THE PATENTS RULES, 2003
COMPLETE SPECIFICATION
[See section 10, Rule 13]

TITLE OF INVENTION

A Saddle-Type Vehicle

APPLICANT

TVS MOTOR COMPANY LIMITED, an Indian company, having its address at "Chaitanya", No.12 Khader Nawaz Khan Road, Nungambakkam, Chennai 600 006, Tamil Nadu, India.

PREAMBLE TO THE DESCRIPTION

The following specification particularly describes the invention and the manner in which it is to be performed.

FIELD OF THE INVENTION

[001] The present invention relates to a saddle-type vehicle.

BACKGROUND OF THE INVENTION

5 [002] In conventional saddle-type vehicles, especially scooter-type vehicles with a floorboard, fuel tank is provided in various positions such as at a rear portion of the vehicle beyond a seat, or under the seat, or under the floorboard of the vehicle or near the power unit of the vehicle. Correspondingly, a fuel tank cap for fuel filling and refuelling is generally
10 provided either in the vicinity of the fuel tank or on the fuel tank itself.

[003] The placement of the fuel tank in the vicinity of the power unit may expose the fuel tank to higher temperatures, which resultantly affects the fuel efficiency of the vehicle as more fuel vapour are generated inside the fuel tank.

15 [004] The placement of the fuel tank and correspondingly fuel tank cap under the seat necessitates that the rider and the pillion dismount from the vehicle for fuel-filling. Even when the fuel tank cap is placed near the tail lamp instead of being under the seat, the rider still needs to dismount to ensure proper fuel-filling at a fuel station, and close the fuel tank cap. Especially in a
20 condition where the floorboard is loaded, the rider will first have to unload the floorboard and then dismount from the seat in order to access the fuel tank cap for fuel filling or refuelling operation. There also remains the risk of fuel

being spilled on to the vehicle parts proximal to the fuel tank cap on the rear side of the vehicle in case of a spill, causing potential damage to the parts of the vehicle.

[005] As mentioned hereinbefore, in some known scooter-type vehicle, the fuel tank is packaged under the floorboard, and since the position of the fuel tank cap is dependent on the positioning of the fuel tank, the fuel tank cap is positioned on a rear panel towards a front of the rider position. However, such fuel tanks have severe limitations in terms of fuel-filling when floorboard is loaded to a height above the fuel tank cap.

[006] Thus, there is a need in the art for a saddle-type vehicle which addresses at least the aforementioned problems.

SUMMARY OF THE INVENTION

[007] In one aspect, the present invention is directed to a saddle-type vehicle. Herein, the saddle type vehicle has a frame with a head tube and a portion of a main tube extending between the head tube and a floorboard. A fuel tank is mounted on the frame. Further, a front panel is disposed on the frame and a fuel inlet opening is provided on the front panel of the vehicle for supplying fuel to the fuel tank. In an embodiment of the invention, the front panel has a front face and a rear face.

[008] In an embodiment of the invention, the fuel tank is mounted on the head tube of the frame. In a further embodiment of the invention, the fuel tank

is disposed between a handlebar supported on the head tube and a front wheel connected to the handlebar, in the vehicle up-down direction.

[009] In another embodiment of the invention, the fuel inlet opening is provided on the rear face of the front panel in a vehicle front-rear direction. In

5 an alternative embodiment of the invention, the fuel inlet opening is provided on the front face of the front panel in the vehicle front-rear direction. In a further embodiment of the invention, the fuel inlet opening is provided between the front face of the front panel and the rear face of the front panel.

In yet another embodiment of the invention, the fuel inlet opening is provided
10 adjacent to an aperture formed on an upper end of the front panel between the front face and the rear face for accommodating the head tube. In a further embodiment of the invention, the fuel inlet opening is provided in an offset position from a vehicle centreline extending in an up-down direction, in a vehicle front view. In another embodiment of the invention, the fuel inlet
15 opening is provided in offset to the left from a vehicle centreline extending in an up-down direction, in the vehicle front view. In another embodiment of the invention, the fuel inlet opening is provided in offset to the right from a vehicle centreline extending in an up-down direction, in the vehicle front view.

[010] In a further embodiment of the invention, the fuel tank has a plurality of
20 mounting flanges for mounting the fuel tank on the frame. In an embodiment, the plurality of mounting flanges are configured to engage with a plurality of mounting brackets on the frame, thereby mounting the fuel tank on the frame.

In another embodiment of the invention, the plurality of mounting flanges are configured to engage with a first end, a second end, and a midpoint of a mounting member mounted on the frame, thereby mounting the fuel tank on the frame.

5 [011] In another embodiment of the invention, a fuel inlet tube connects the fuel tank with the fuel inlet opening, and a fuel cap attached on the fuel inlet tube for covering the fuel inlet opening. The fuel tank is hinged on the front panel.

[012] In yet another embodiment of the invention, the fuel tank has a fuel
10 pump for transmitting fuel from the fuel tank to an engine, and a fuel sender unit for gauging level of fuel in the fuel tank. In an embodiment, the fuel pump is disposed on a front face of the fuel tank and offset to the right from the vehicle centreline extending in the up-down direction in the vehicle front view, and the fuel sender unit is disposed on the front face of the fuel tank and
15 offset to the left from the vehicle centreline extending in the up-down direction, in the vehicle front view. In another embodiment, the fuel pump is disposed on a top face of the fuel tank and is centrally aligned with the vehicle centreline extending in the up-down direction in the vehicle front view, and the fuel sender unit is disposed on the top face of the fuel tank and offset
20 to the left from the vehicle centreline extending in the up-down direction, in the vehicle front view.

[013] In another embodiment of the invention, the saddle-type vehicle has a breather assembly for relieving vacuum and pressure inside the fuel tank. The breather assembly is disposed such that one end of the breather assembly is in fluid connection with the fuel inlet tube at the fuel inlet opening.

5 [014] In another embodiment of the invention, the saddle-type vehicle has a canister for adsorbing fuel vapour from the fuel tank and a Purge Control Valve to release adsorbed fuel vapour back into the engine. In an embodiment, the canister and the Purge Control Valve are mounted on a portion of the main tube extending horizontally and rearwardly from the frame.

10 In another embodiment, the canister and the Purge Control Valve are mounted on the frame and offset to the right from the vehicle centreline extending in the up-down direction, in a vehicle front view.

BRIEF DESCRIPTION OF THE DRAWINGS

15 [015] Reference will be made to embodiments of the invention, examples of which may be illustrated in accompanying figures. These figures are intended to be illustrative, not limiting. Although the invention is generally described in context of these embodiments, it should be understood that it is not intended to limit the scope of the invention to these particular embodiments.

20 Figure 1 is a side view of an exemplary saddle-type vehicle, in accordance with an embodiment of the invention.

Figure 2 is a left side perspective view of the saddle-type vehicle, in accordance with an embodiment of the invention.

Figure 3 shows a perspective view of the saddle-type vehicle after removing various panels of the vehicle, in accordance with an embodiment of
5 the invention.

Figure 4 shows a front view of the saddle-type vehicle after removing various panels of the vehicle, in accordance with an embodiment of the invention.

Figure 5 illustrates a side view of a fuel tank mounted on a frame, in
10 accordance with an embodiment of the invention.

Figure 6 illustrates a rear view of the fuel tank mounted on the frame, in accordance with an embodiment of the invention.

Figure 7 illustrates a top view of the saddle-type vehicle, in accordance with an embodiment of the invention.

15 Figure 8 illustrates a side view of the fuel tank mounted on the frame, in accordance with an embodiment of the invention.

Figure 9 illustrates a rear view of the fuel tank mounted on the frame, in accordance with an embodiment of the invention.

Figure 10 illustrates a top view of the fuel tank, in accordance with an
20 embodiment of the invention.

Figure 11 is an exploded view showing mounting of the fuel tank on the frame, in accordance with an embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[016] The present invention relates to a saddle-type vehicle. More particularly, the present invention relates to a fuel tank and a fuel inlet
5 opening of a saddle-type vehicle.

[017] Figure 1 illustrates a right-side view of an exemplary saddle-type vehicle 10, in accordance with an embodiment of the present subject matter. The vehicle 10 comprises a frame 105. The frame 105 comprises a head tube 105A, and a portion of a main tube 105B extending rearwardly downward
10 from the head tube 105A to a floorboard 155. One or more front suspensions 110 connect a front wheel 115 to a handlebar 190, which forms a steering assembly of the vehicle 10. The steering assembly is rotatably disposed about the head tube 105A. The main tube 105B further includes a portion extending horizontally and rearwardly from the frame 105. Further, the frame
15 105 includes one or more rear tubes 105C extending inclinedly rearward from a rear portion of the main tube 105B towards a rear portion of the vehicle 10.

[018] The vehicle 10 includes a power unit comprising at least one of an internal combustion (IC) engine 125. The power unit is coupled to the rear wheel 145. In one embodiment, the engine 125 is swingably connected to the
20 frame assembly 105. In one embodiment, the engine 125 is mounted to the swing arm (not shown) and the swing arm is swingably connected to the frame 105. Further, the vehicle 10 includes a transmission means (not shown)

coupling the rear wheel 145 to the power unit. The transmission means includes a continuously variable transmission, an automatic transmission, or a fixed ratio transmission. A seat assembly 151 is disposed above the power unit and is supported by the rear tubes 105C. The seat assembly 151 is
5 hingedly openable. The frame 105 defines a step-through portion ahead of the seat assembly 151. The floorboard 155 is disposed at the step-through portion, wherein a rider can operate the vehicle 10 in a seated position by resting feet on the floorboard 155. Further, the floorboard 155 is capable of carrying loads.

10 [019] Further, the frame 105 is covered by plurality of body panels including a front panel 160 having a front face 160A and a rear face 160B, an under-seat cover 162, and a left and a right-side panel 163 disposed on the frame 105 and covering the frame 105 and parts mounted thereof.

[020] In addition, a front fender 165 is covering at least a portion of the front
15 wheel 115. A utility box is disposed below the seat assembly 151 and is supported by the frame 105. A rear fender 175 is covering at least a portion of the rear wheel 145 and is positioned upwardly of the rear wheel 145. One or more suspension(s) (not shown) are provided in the rear portion of the vehicle 10 for connecting the swing arm and the rear wheel 145 to the frame 105 for
20 damping the forces from the rear wheel 145 and the power unit from reaching the frame 105.

[021] Furthermore, the vehicle 10 comprises of plurality of electrical and electronic components including a headlight 185A, a taillight 185B, a transistor-controlled ignition (TCI) unit (not shown), and an alternator (not shown), a starter motor (not shown).

5 [022] As illustrated in Figure 2, the saddle-type vehicle 10 has the frame 105 having the head tube 105A and a portion of the main tube 105B extending between the head tube 105A and the floorboard 155. As can be seen in Figure 2, a fuel tank 200 is mounted on the frame 105. The fuel tank 200 is made up of sheet metal or resin material based on the requirement of the
10 saddle-type vehicle 10. In an embodiment, the fuel tank 200 is mounted on the frame 105 in a manner that the fuel tank 200 is mounted forwardly from the frame 105 in a vehicle front-rear direction. In an embodiment of the invention, the fuel tank 200 is mounted on the head tube 105A of the frame 105. In another embodiment of the invention, the fuel tank 200 is disposed
15 between the handlebar 190 supported on the head tube 105A and the front wheel 115 connected to the handlebar 190, in a vehicle up-down direction. The saddle-type vehicle 10 further has a fuel inlet opening 210 for providing an inlet for fuel from an external source to the fuel tank 200. The fuel inlet opening 210 is provided on the front panel 160 of the saddle type-vehicle 10.

20 [023] In the embodiment illustrated in Figures 2 and 3, the fuel inlet opening 210 is provided on the rear face 160B of the front panel 160 in the vehicle front-rear direction. The fuel inlet opening 210 is in fluid connection with the

fuel tank 200 by a fuel inlet tube 220 extending from the fuel inlet opening 210 to the fuel tank 200. The fuel inlet opening 210 is covered by means of a fuel cap 222. In an embodiment of the invention, the fuel cap 222 is threadedly engaged with the fuel inlet opening 210. In an alternative embodiment of the invention, the fuel cap 222 is hinged on the front panel 160 and is operable by means of a wire wherein a first end of the wire is coupled with the fuel cap 222 and an operable end of the wire allows to operate the fuel cap 222. In an embodiment of the present invention, the operable end of the wire is connected to an ignition lock through an operable switch.

[024] As illustrated in Figure 4, the fuel inlet opening 210 is provided in an offset position from a vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view. In the embodiment of the invention illustrated in Figure 4, the fuel inlet opening 210 is offset to the right from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view. In an alternative embodiment of the invention, the fuel inlet opening 210 is offset to the left from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.

[025] As further illustrated in Figure 4, a fuel pump 230 is provided on the fuel tank 200 for transmitting fuel from the fuel tank 200 to the engine 125, and a fuel sender unit 240 is provided on the fuel tank 200 for gauging level of fuel in the fuel tank 200. In the embodiment illustrated in Figure 4, the fuel pump 230 is disposed on a front face of the fuel tank 200 and is offset to the

right from the vehicle centreline (X-X') extending in the up-down direction in the vehicle front view. Further, the fuel sender unit 240 is disposed on the front face of the fuel tank 200 and offset to the left from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.

5 [026] As further illustrated in Figure 4, and referenced in Figure 3, the saddle-type vehicle 10 further has a breather assembly 250 for relieving vacuum and pressure inside the fuel tank 200 by providing an outlet for vacuum and pressure caused due to emitted fuel vapour inside the fuel tank 200. The breather assembly 250 is further connected to a canister 260
10 (shown in Figure 5) for adsorbing the fuel vapour emitted from the fuel in the fuel tank 200, thereby releasing the pressure inside the fuel tank 200. The canister 260 is further connected to a purge control valve 270 (shown in Figure 5) for releasing the adsorbed fuel vapour in the canister 260 into the engine 125. In an embodiment of the invention, the breather assembly 250 is
15 disposed such that one end of the breather assembly 250 is in fluid connection with the fuel inlet tube 220 at the fuel inlet opening 210.

[027] As illustrated in Figure 5, the canister 260 and the purge control valve 270 are mounted on the portion of the main tube 105B extending horizontally and rearwardly from the frame 105 such that the canister 260 and the purge
20 control valve 270 are disposed in the vicinity of or under the floorboard 155.

[028] Figure 6 illustrates a rear view of a part of the saddle-type vehicle 10. As illustrated in Figure 6, the fuel tank 200 has a plurality of mounting flanges

212, 214, 216 for mounting the fuel tank 200 on the frame 105. In the embodiment illustrated in Figure 6, the plurality of mounting flanges 212, 214, 216 are configured to engage with a plurality of mounting brackets on the frame 105, thereby mounting the fuel tank 200 on the frame 105. Each of the
5 mounting flanges 212, 214, 216 comprises a through hole that is configured to engage with a through hole on the mounting brackets on the frame 105, thereby allowing fasteners to move in the through holes, facilitating the mounting of the fuel tank 200 on the frame 105.

[029] Figure 7 illustrates a top view of an alternative embodiment of the
10 saddle-type vehicle 10. In the embodiment illustrated in Figures 7 and 8, the fuel inlet opening 210 is provided on the front face 160A of the front panel 160 in the vehicle front-rear direction.

[030] Figure 9 illustrates a rear view of this embodiment of the saddle-type vehicle 10. As illustrated in Figure 9, the fuel inlet opening 210 is provided in
15 an offset position from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle rear view. In the embodiment of the invention illustrated in Figure 9, the fuel inlet opening 210 is offset to the left from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle rear view. Accordingly, in this embodiment, fuel inlet opening 210 is offset to
20 the right from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view. In an alternative embodiment of the invention, the fuel inlet opening 210 is offset to the right from the vehicle centreline

extending (X-X') in the up-down direction, in the vehicle rear view. Accordingly, in this embodiment, fuel inlet opening 210 is offset to the left from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.

5 [031] As further illustrated in Figure 9, the canister 260 and the purge control valve 270 for this embodiment are mounted on the frame 105 and are disposed offset to the left from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle rear view. Accordingly, the canister 260 and the purge control valve 270 are mounted on the frame 105 and offset to the
10 right from the vehicle centreline (X-X') extending in an up-down direction, in the vehicle front view.

[032] As illustrated in the embodiment depicted in Figure 10, the fuel pump 230 is disposed on a top face of the fuel tank 200 and is centrally aligned with a vehicle centreline (Y-Y') extending in the front-rear direction. Accordingly,
15 the fuel pump 230 is centrally aligned with the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view. Further, the fuel sender unit 240 is disposed on the top face of the fuel tank 200 and is offset to the left from the vehicle centreline (Y-Y') extending in the front-rear direction. Accordingly, the fuel sender unit 240 is disposed offset to the left
20 from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.

[033] As illustrated in Figure 11, the plurality of mounting flanges 212, 214, 216 are configured to engage with a first end, a second end, and a midpoint of a mounting member 218, wherein the mounting member 218 is mounted on the frame 105, thereby mounting the fuel tank 200 on the frame 105.

5 [034] In a further alternative embodiment of the invention, the fuel inlet opening 210 is provided between the front face 160A of the front panel 160 and the rear face 160B of the front panel 160. In an embodiment of the invention, the fuel inlet opening 210 is provided adjacent to an aperture formed on an upper end of the front panel 160 between the front face 160A
10 and the rear face 160B for accommodating the head tube 105A.

[035] Advantageously, the present invention provides a saddle-type vehicle wherein the rider does not need to dismount the vehicle or unload the floorboard in order to refuel the vehicle, improving rider comfort. The provision of the fuel inlet opening on the front panel, at the positions suggested by the
15 present invention further eliminates the requirement of floorboard unloading for refuelling of the vehicle, further improving rider comfort. In addition, the risk of spilling of fuel on to the vehicle parts in the rear of the vehicle is negated.

[036] Further, the provision of the fuel tank in a position away from the power
20 unit means that the fuel tank is not exposed to the higher temperatures of the vicinity of the power unit and resultantly, less fuel vapour are formed inside

the fuel tank, which improves the fuel efficiency of the vehicle and reduces emissions.

[037] Furthermore, the saddle-type vehicle of the present invention provides better ergonomics in terms accessing the fuel inlet opening. The saddle-type
5 vehicle has improved aesthetics as the fuel inlet opening and the fuel cap flush with the front panel.

[038] While the present invention has been described with respect to certain embodiments, it will be apparent to those skilled in the art that various changes and modification may be made without departing from the scope of
10 the invention as defined in the following claims.

WE CLAIM:

1. A saddle-type vehicle (10), comprising:
 - a frame (105) having a head tube (105A) and a portion of a main tube (105B) extending between the head tube (105A) and a floorboard (155);
 - 5 a fuel tank (200) mounted on the frame (105);
 - a front panel (160) disposed on the frame (105); and
 - a fuel inlet opening (210) provided on the front panel (160) of the vehicle (10) for supplying fuel to the fuel tank (200).
- 10 2. The saddle-type vehicle (10) as claimed in claim 1, wherein the fuel tank (200) is mounted on the head tube (105A) of the frame (105).
3. The saddle-type vehicle (10) as claimed in claim 1, wherein the front panel (160) comprises a front face (160A) and a rear face (160B).
- 15 4. The saddle-type vehicle (10) as claimed in claim 1 and 3, wherein the fuel inlet opening (210) is provided on the rear face (160B) of the front panel (160) in a vehicle front-rear direction.
- 20 5. The saddle-type vehicle (10) as claimed in claim 1 and 3, wherein the fuel inlet opening (210) is provided on the front face (160A) of the front panel (160) in the vehicle front-rear direction.

6. The saddle-type vehicle (10) as claimed in claim 1 and 3, wherein the fuel inlet opening (210) being provided between the front face (160A) of the front panel (160) and the rear face (160B) of the front panel (160), for supplying fuel to the fuel tank (200).
7. The saddle-type vehicle (10) as claimed in 6, wherein the fuel inlet opening (210) is provided adjacent to an aperture formed on an upper end of the front panel (160) between the front face (160A) and the rear face (160B) for accommodating the head tube (105A).
8. The saddle-type vehicle (10) as claimed in claims 4 and 5, wherein the fuel inlet opening (210) is provided in an offset position from a vehicle centreline (X-X') extending in an up-down direction, in a vehicle front view.
9. The saddle-type vehicle (10) as claimed in claims 8, wherein the fuel inlet opening (210) is offset to the left from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.
10. The saddle-type vehicle (10) as claimed in claim 8, wherein the fuel inlet opening (210) is offset to the right from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.

11. The saddle-type vehicle (10) as claimed in claim 1, wherein the fuel tank (200) is disposed between a handlebar (190) supported on the head tube (105A) and a front wheel (115) connected to the handlebar (190), in the vehicle up-down direction.

12. The saddle-type vehicle (10) as claimed in claim 1, wherein the fuel tank (200) comprises a plurality of mounting flanges (212, 214, 216) for mounting the fuel tank (200) on the frame (105).

13. The saddle-type vehicle (10) as claimed in claims 4 and 12, wherein the plurality of mounting flanges (212, 214, 216) are configured to engage with a plurality of mounting brackets on the frame (105), thereby mounting the fuel tank (200) on the frame (105).

14. The saddle-type vehicle (10) as claimed in claims 5 and 12, wherein the plurality of mounting flanges (212, 214, 216) are configured to engage with a first end, a second end, and a midpoint of a mounting member (218) mounted on the frame (105), thereby mounting the fuel tank (200) on the frame (105).

15. The saddle-type vehicle (10) as claimed in claim 1, comprising a fuel inlet tube (220) for connecting the fuel tank (200) with the fuel inlet opening (210), and a fuel cap (222) attached on the fuel inlet tube (220) for covering the fuel inlet opening (210).

5

16. The saddle-type vehicle (10) as claimed in claim 15, wherein the fuel cap (222) is hinged on the front panel (160) for covering the fuel inlet opening (210).

10 17. The saddle-type vehicle (10) as claimed in claim 1, comprising a fuel pump (230) for transmitting fuel from the fuel tank (200) to an engine (125); and a fuel sender unit (240) for gauging level of fuel in the fuel tank (200).

15 18. The saddle-type vehicle (10) as claimed in claims 4 and 17, wherein the fuel pump (230) is disposed on a front face of the fuel tank (200) and offset to the right from the vehicle centreline (X-X') extending in the up-down direction in the vehicle front view, and the fuel sender unit (240) is disposed on the front face of the fuel tank (200) and offset to the left from
20 the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.

19. The saddle-type vehicle (10) as claimed in claims 5 and 17, wherein the fuel pump (230) is disposed on a top face of the fuel tank (200) and is centrally aligned with the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view, and the fuel sender unit (240) is
5 disposed on the top face of the fuel tank (200) and offset to the left from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.
20. The saddle-type vehicle (10) as claimed in claim 1, comprising a breather
10 assembly (250) for relieving vacuum and pressure inside the fuel tank (200).
21. The saddle-type vehicle (10) as claimed in claims 1 and 20, wherein the breather assembly (250) is disposed such that one end of the breather
15 assembly is in fluid connection with the fuel inlet tube (220) at the fuel inlet opening (210).
22. The saddle-type vehicle (10) as claimed in claim 1, comprising a canister
(260) for adsorbing fuel vapour from the fuel tank (200); and a Purge
20 Control Valve (270) to release adsorbed fuel vapour back into the engine (125).

23. The saddle-type vehicle (10) as claimed in claim 4 and 22, wherein the canister (260) and the Purge Control Valve (270) are mounted on a portion of the main tube (105B) extending horizontally and rearwardly from the frame (105).

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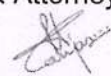
24. The saddle-type vehicle (10) as claimed in claim 5 and 22, wherein the canister (260) and the Purge Control Valve (270) are mounted on the frame (105) and offset to the right from the vehicle centreline (X-X') extending in the up-down direction, in the vehicle front view.

10

Dated this 9th day of March 2021

15

TVS MOTOR COMPANY LIMITED
By their Agent & Attorney



(Nikhil Ranjan)
of Khaitan & Co
Reg No IN/PA-1471

20

ABSTRACT

A Saddle-Type Vehicle

The present invention relates to a saddle-type vehicle (10). The saddle-type vehicle (10) has a frame (105) with a head tube (105A) and a portion of a main tube (105B) extending between the head tube (105A) and a floorboard (155). Further, a fuel tank (200) is mounted on the frame (105).
5 Herein, a front panel (160) is disposed on the frame (105). A fuel inlet opening (210) is provided on the front panel (160) of the vehicle (10) for supplying fuel to the fuel tank (200). The fuel inlet opening (210) is provided on a rear face (160B) of the front panel (160) or a front face
10 (160A) of the front panel (160).

Reference Figure 2

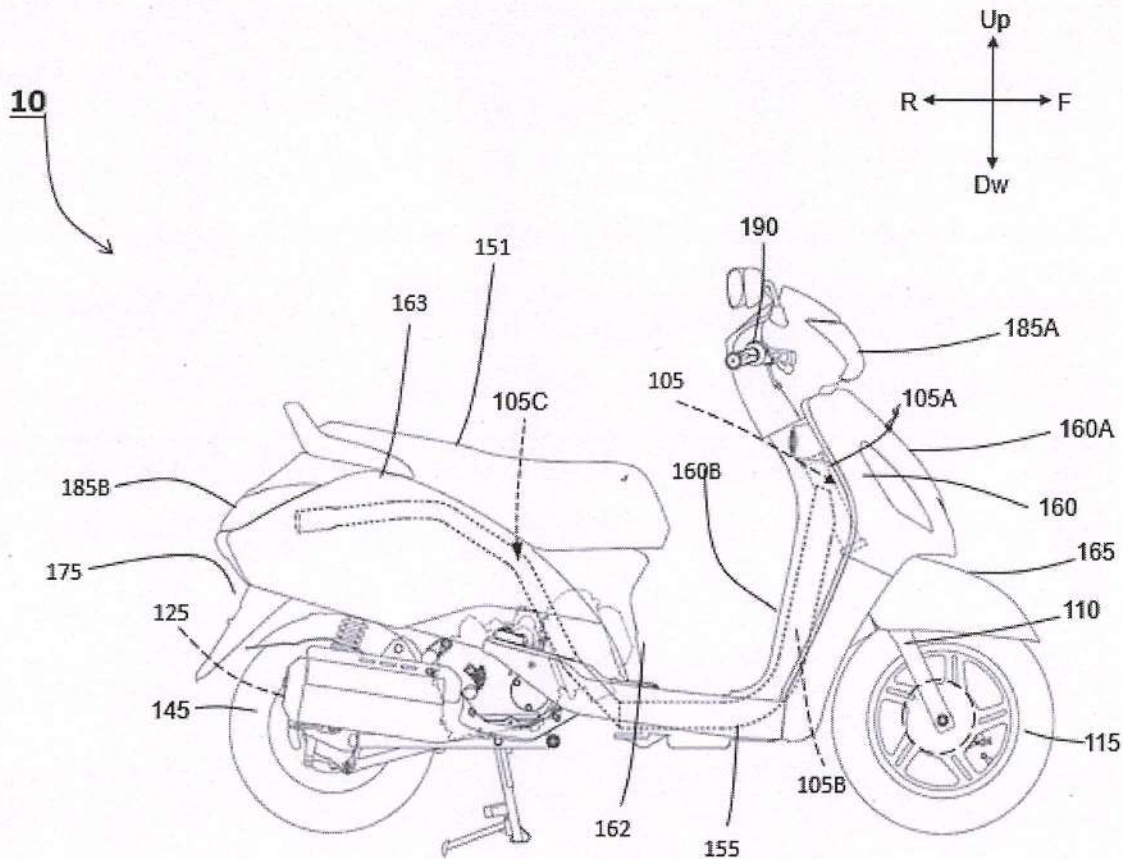


Figure 1

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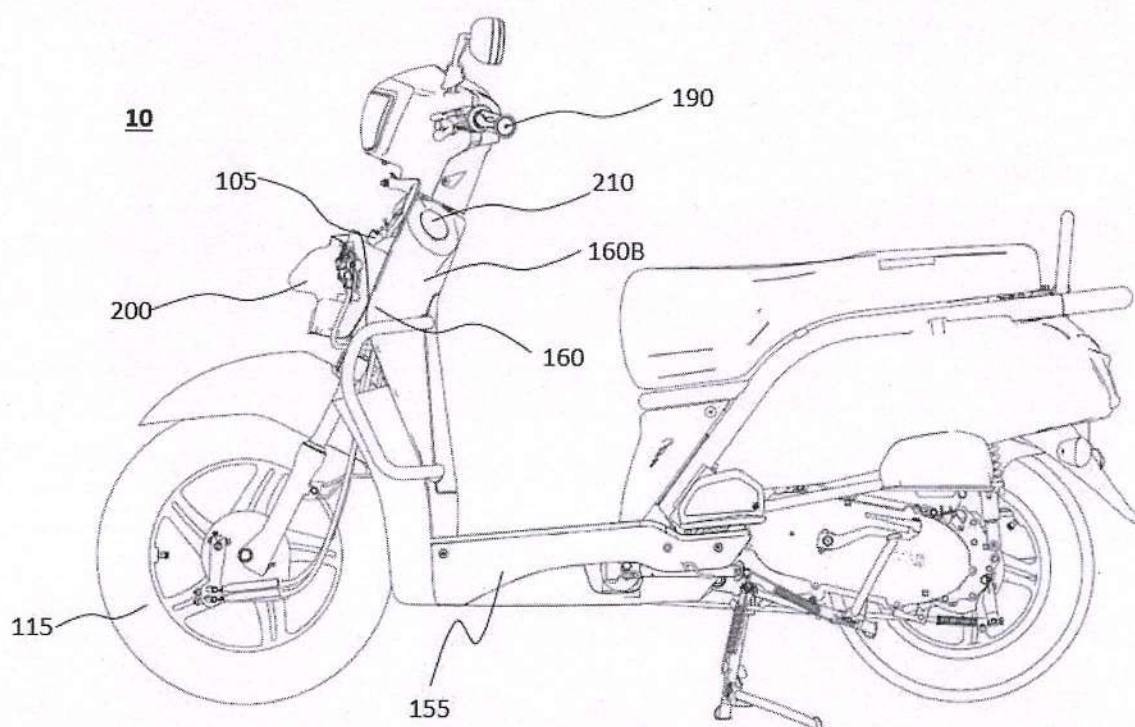


Figure 2

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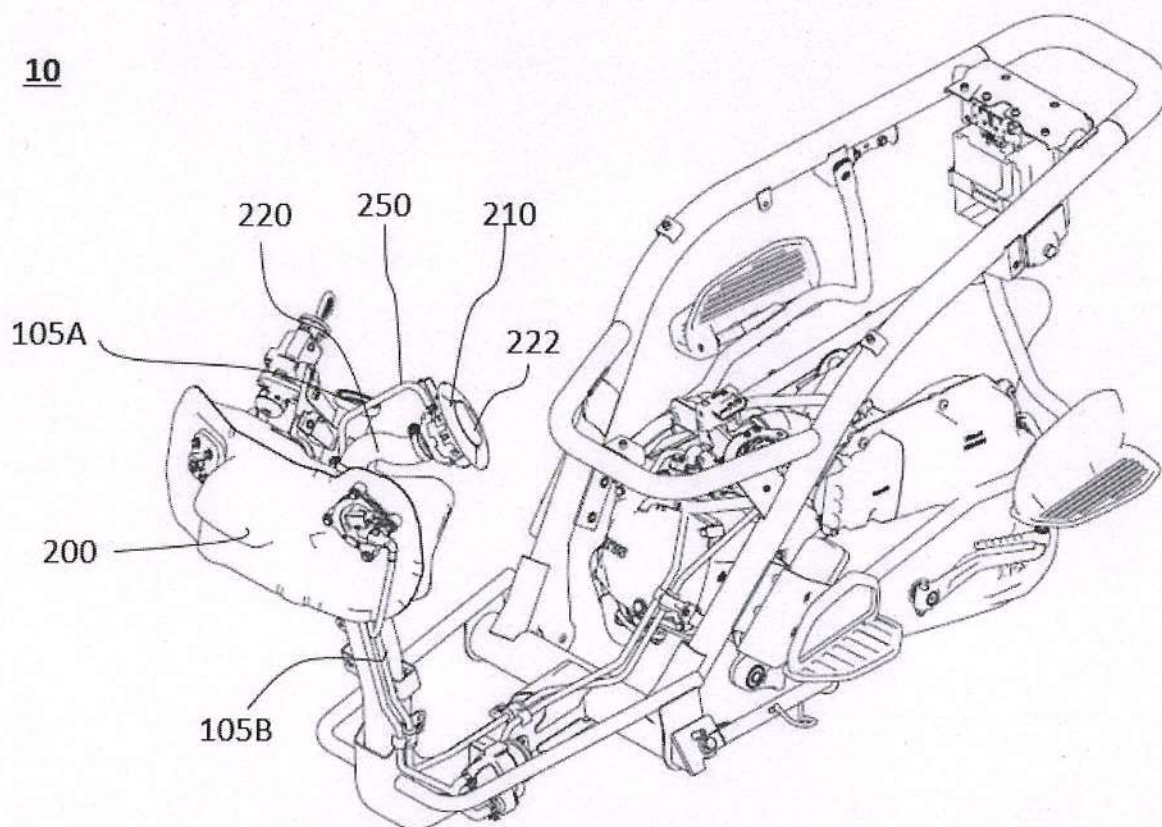


Figure 3

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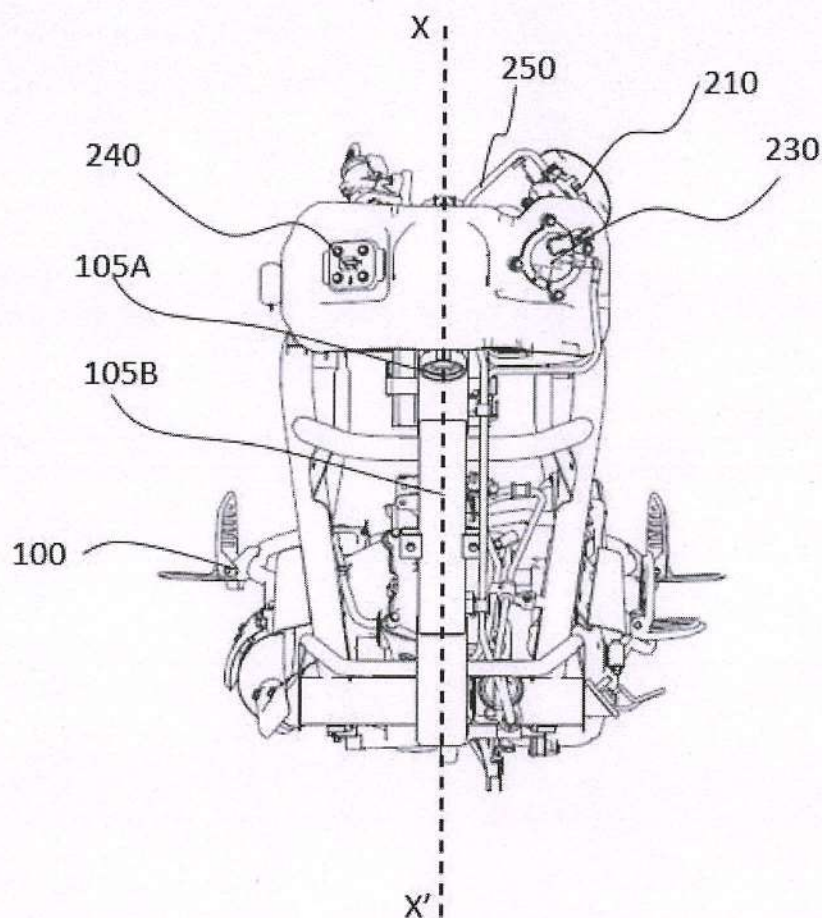


Figure 4

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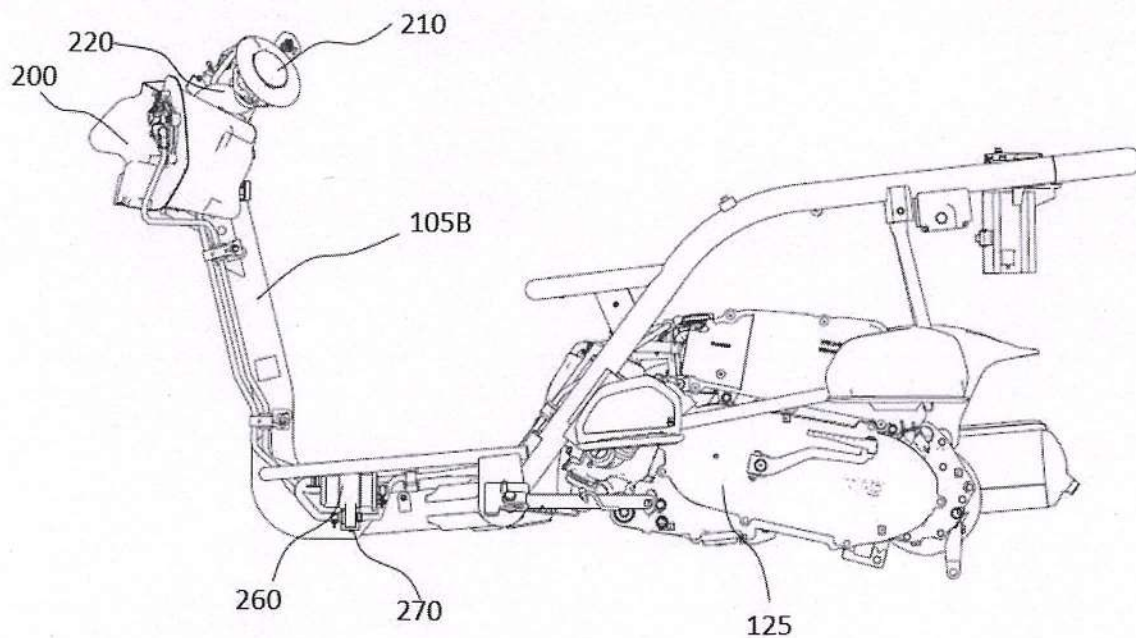


Figure 5

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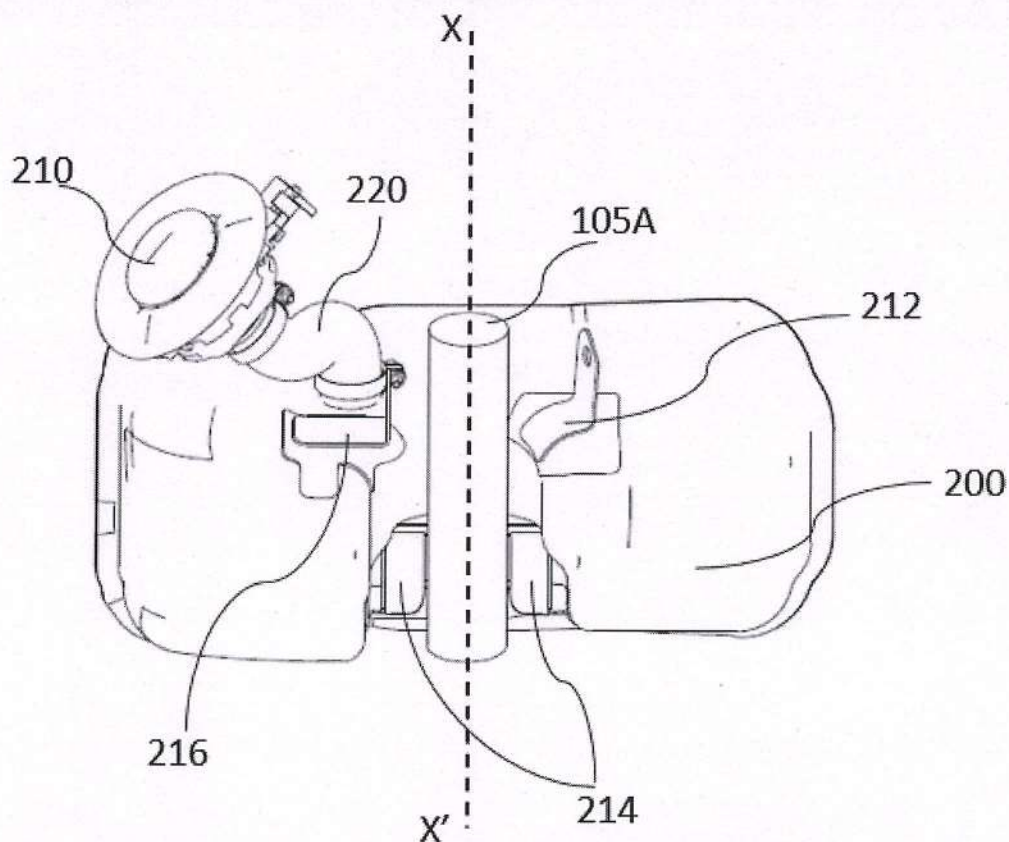


Figure 6

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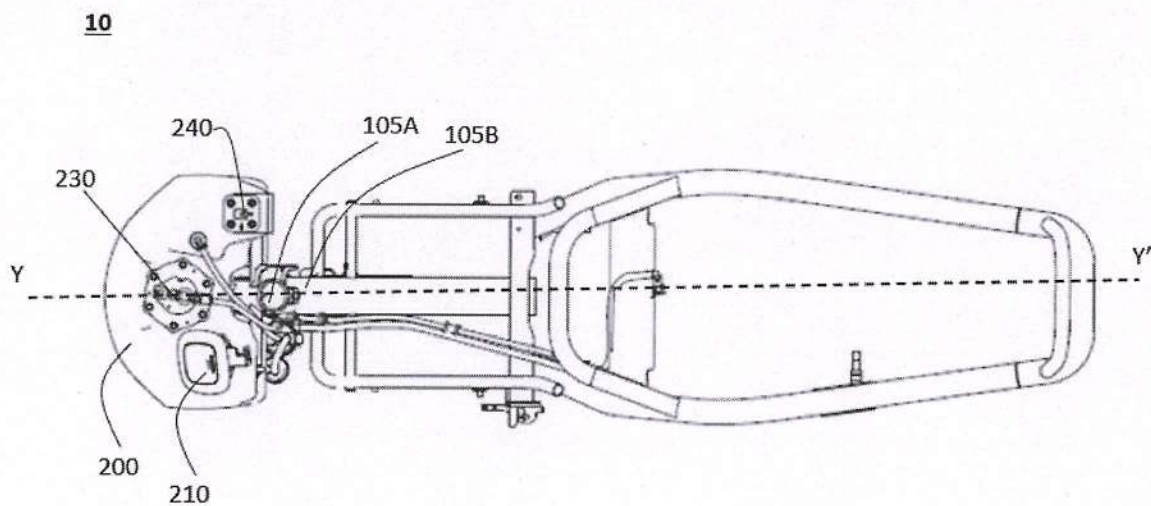


Figure 7

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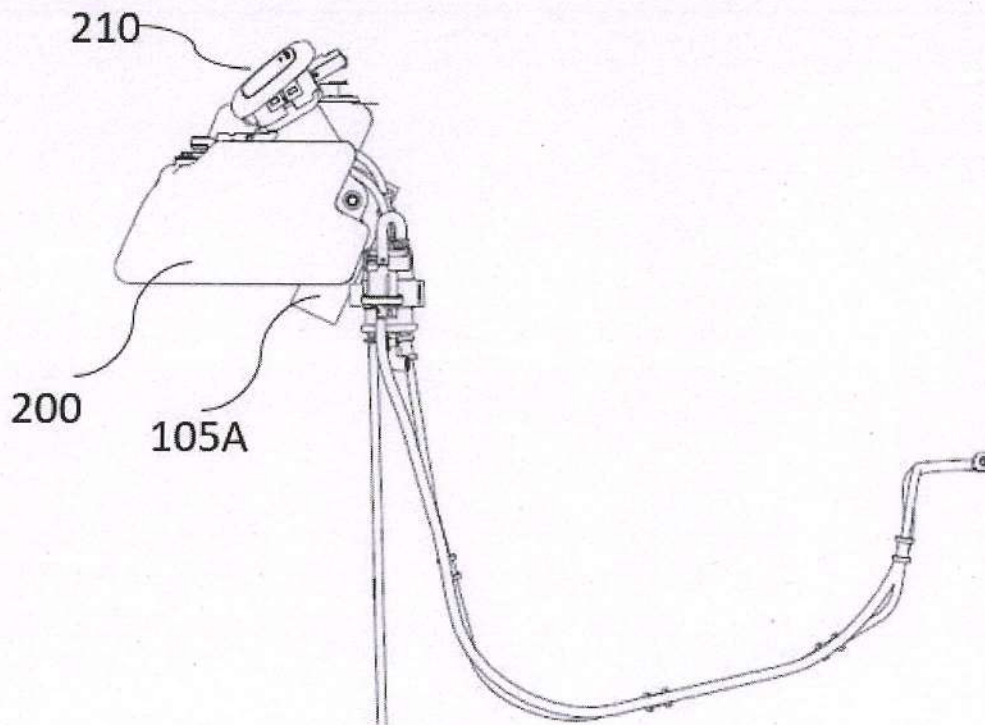


Figure 8

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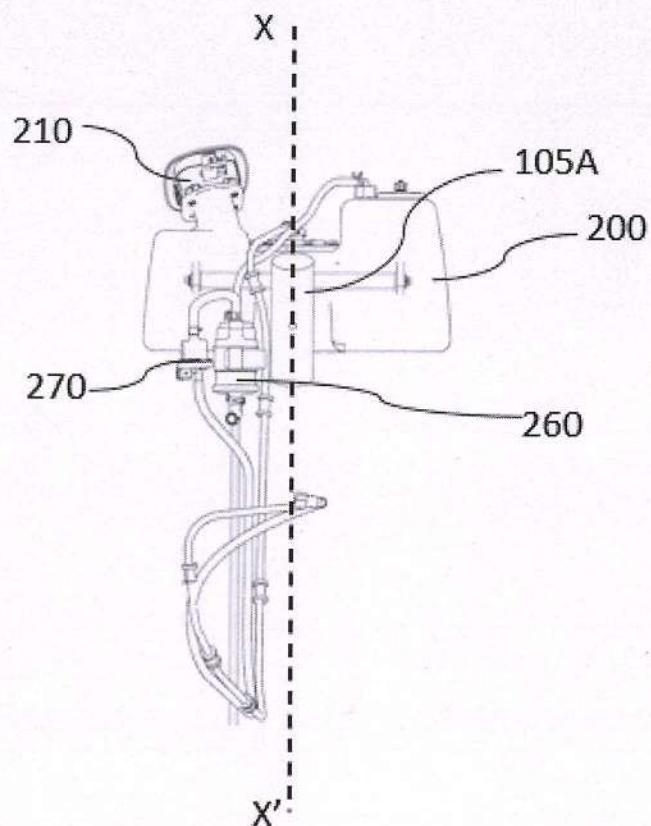


Figure 9

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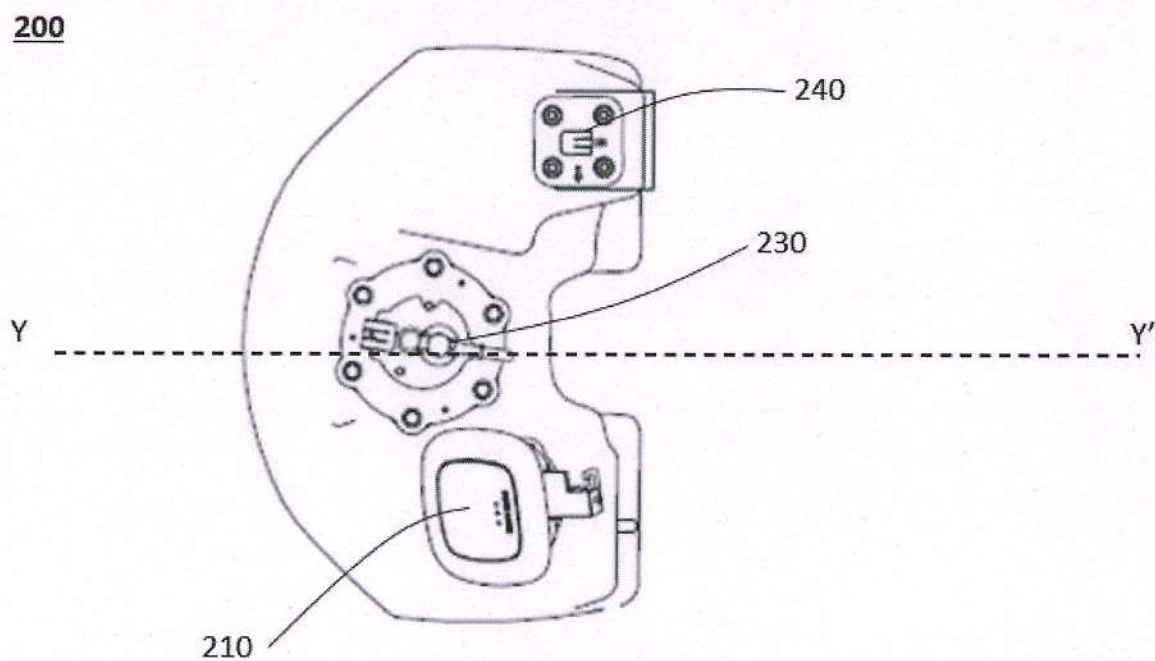


Figure 10

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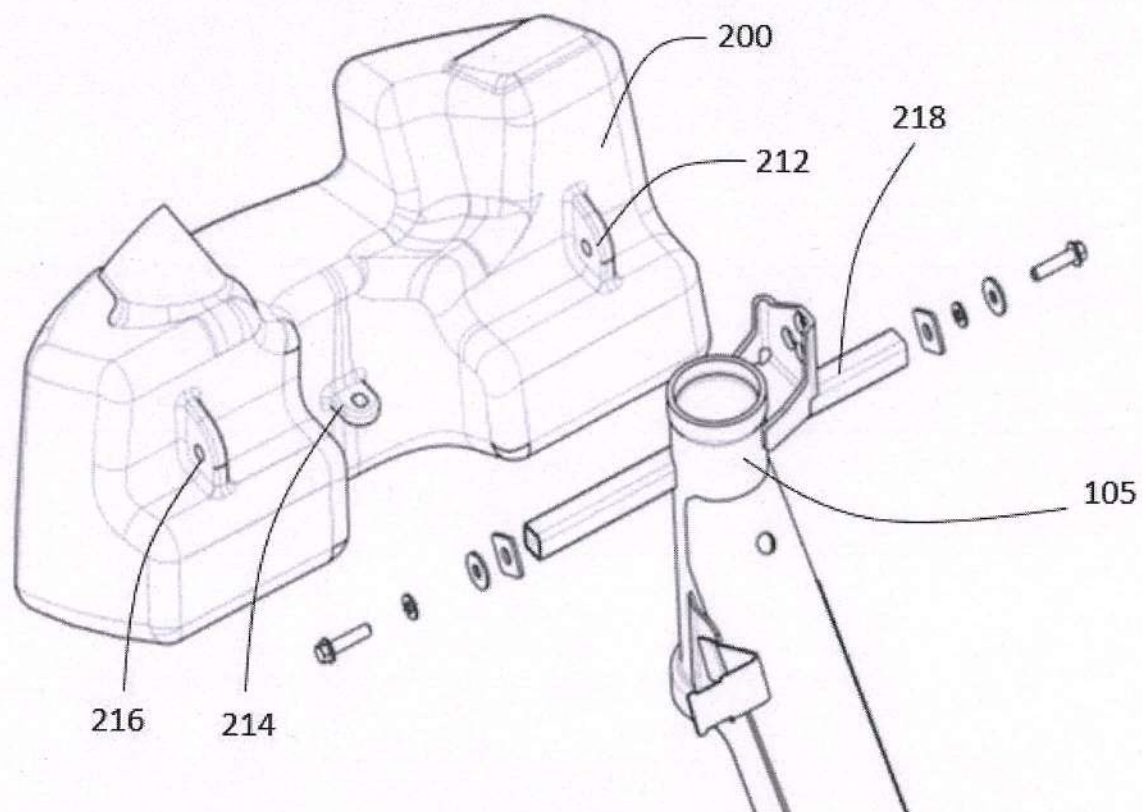
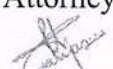


Figure 11

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of Khaitan & Co
Reg No IN/PA-1471

GOBIERNO DE INDIA
MINISTERIO DE COMERCIO E INDUSTRIA
LA OFICINA DE PATENTES

A QUIEN CORRESPONDA

Yo, el abajo firmante, siendo un funcionario debidamente autorizado para firmar y emitir el certificado en nombre del Contralor General de Patentes, Diseños y Marcas de conformidad con las disposiciones del artículo 73 (3) de la Ley de Patentes de 1970, por la presente certifica que el adjunto aquí presente es una copia fiel del documento o documentos presentados en relación con la siguiente Solicitud de Patente:

Número de solicitud: 202141009896

Fecha de presentación: 09/03/2021

Nombre de los documentos solicitados: Descripción completa

Este certificado se emite bajo las facultades que me confieren U/S 147 (1) de la Ley de Patentes.

este día 01 de marzo de 2021

Controlador de Patentes y Diseños
Signatario autorizado

FORMA 1 LA LEY DE PATENTES DE 1970 (39 DE 1970) y EL REGLAMENTO DE PATENTES, 2003 SOLICITUD DE CONCESIÓN DE PATENTE (Ver sección 7, 54 y 135 y la subregla (1) de las reglas 20)		(PARA USO DE OFICINA SOLAMENTE)		
		Solicitud No.		
		Fecha de Presentación:		
		Cantidad de Tasa Pagada:		
		CBR No.:		
		Firma:		
1. REFERENCIA / IDENTIFICACIÓN DEL SOLICITANTE NO. (SEGÚN LO ASIGNADO POR LA OFICINA)				
2. TIPO DE SOLICITUD [Marque (☒) en la categoría correspondiente]				
Ordinaria ☒		Convención ☐		
PCT-NP ☐				
Divisional ☐	Patente de adición ☐	Divisional ☐	Patente de adición ☐	
3A. SOLICITANTE (S)				
Nombre Completo	Nacionalidad	País de Residencia	Dirección del solicitante	
TVS MOTOR COMPANY LIMITED	Una empresa india constituida bajo la Ley de Sociedades de 1956	India	No. de casa	Chaitanya
			Calle	No. 12 Khader, Nawaz Khan Road, Nungambakkam
			Ciudad	Chennai
			Estado	Tamil Nadu
			País	India
			Código Pin	600 006
3B. CATEGORÍA DE SOLICITANTE [Marque (☒) en la categoría correspondiente]				
Persona Natural		Otra que persona natural		
		Pequeña entidad ☐	Iniciante ☐ Otro ☒	
4. INVENTOR(ES) [Marque (☒) en la categoría correspondiente]				
¿Son todos los inventores los mismos que los solicitantes mencionados anteriormente?		Sí ☐	No ☒	

Si la respuesta es "No", proporcione los detalles del inventor o inventores.

Nombre completo	Nacionalidad	País de residencia	Dirección del inventor	
KARNAM VENKATA MANGA RAJU	India	India	No. casa	Chaitanya
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			Estado	Tamil Nadu
			País	India
			Código pin	600 006
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			Ciudad	Chennai
			Estado	Tamil Nadu
			País	India
			Código pin	600 006
R DHILIP KUMAR	India	India	No. casa	Chaitanya
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			Ciudad	Chennai
			Estado	Tamil Nadu
			País	India
			Código pin	600 006
SHAILESH KUMAR	India	India	No. casa	Chaitanya
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			Ciudad	Chennai
			Estado	Tamil Nadu

			País	India
			Código pin	600 006
THEJASVI VASUDEVA MURTHY	India	India	No. casa	Chaitanya
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			Ciudad	Chennai
			Estado	Tamil Nadu
			País	India
			Código pin	600 006
RAVIKUMAR GOKA BALU	India	India	No. casa	Chaitanya
			Calle	No. 12 Khader, Nawaz Khan Road, Nungambakkam
			Ciudad	Chennai
			Estado	Tamil Nadu
			País	India
			Código pin	600 006
A GOKUL	India	India	No. casa	Chaitanya
			Calle	No. 12 Khader, Nawaz Khan Road, Nungambakkam
			Ciudad	Chennai
			Estado	Tamil Nadu
			País	India
			Código pin	600 006
S RADHIKA	India	India	No. casa	Chaitanya
			Calle	No. 12 Khader, Nawaz Khan Road, Nungambakkam
			Ciudad	Chennai
			Estado	Tamil Nadu
			País	India
			Código pin	600 006

AKHILESH MANCHANDANI	India	India	No. casa	Chaitanya	
			Calle	No. 12 Khader, Nawaz Khan Road, Nungambakkam	
			Ciudad	Chennai	
			Estado	Tamil Nadu	
			País	India	
			Código pin	600 006	
5. TÍTULO DE LA INVENCION					
UN VEHÍCULO TIPO SILLA DE MONTAR					
6. AGENTE (S) AUTORIZADO (S) DE PATENTES REGISTRADOS		IN/PA NO.	1086		
		Nombre	Adheesh Nargolkar		
		No. de móvil	9820776760		
7. DIRECCIÓN DE SERVICIO DEL SOLICITANTE EN LA INDIA		Nombre	Khaitan & Co		
		Dirección Postal	Centro One Indiabulls, Piso 13, 841, Senapati Bapat Calle Elphinstone, Marg Bombay 400013, Maharashtra		
		No. de Teléfono	66365000		
		No. móvil	9820776760		
		No. Fax	66365050		
		e-mail	kcopatents@khaitanco.com adheesh.nargolkar@khaitanco.com		
		8. EN CASO DE SOLICITUD QUE RECLAME LA PRIORIDAD DE LA SOLICITUD PRESENTADA EN EL PAÍS DE LA CONVENCION, DATOS DE LA SOLICITUD DE LA CONVENCION			
País	Numero de solicitud	Fecha de presentación	Nombre del solicitante	Título de la invención	IPC (como clasificado en el país de la convención)
9. EN CASO DE SOLICITUD PCT, DATOS DE LA SOLICITUD INTERNACIONAL PRESENTADA BAJO EL TRATADO DE COOPERACIÓN DE PATENTES (PCT)					

Numero de solicitud internacional	Fecha de presentación internacional																				
10. EN CASO DE UNA SOLICITUD DIVISIONAL PRESENTADA BAJO LA SECCIÓN 16, DATOS DE LA SOLICITUD ORIGINAL (PRIMERA) SOLICITUD ORIGINAL (PRIMERA)																					
No. de solicitud original (primera)	Fecha de presentación de solicitud original (primera)																				
11. EN CASO DE PATENTE ADICIONAL PRESENTADA DE CONFORMIDAD CON LA SECCIÓN 54, DATOS DE LA PRINCIPAL SOLICITUD O PATENTE																					
No. de patente/solicitud principal	Fecha de presentación de solicitud principal																				
Nulo	Nulo																				
12. DECLARACIONES																					
(i) Declaración del inventor (es) (En caso de que el solicitante sea un cesionario: el inventor(es) puede firmar el presente a continuación o el solicitante puede cargar la cesión o adjuntar la cesión a esta solicitud de patente o enviar la cesión por correo postal/transmisión electrónica debidamente autenticada dentro del período prescrito). Yo / nosotros, los inventores arriba mencionados, somos los verdaderos y primeros inventores de esta Invención y declaramos que los solicitantes en este documento son cesionarios o representantes legales. (a) Fecha: 8 de marzo de 2021 <table border="0"> <tr> <td>(b) Firma (s)</td> <td>(c) Nombre (s)</td> </tr> <tr> <td>1. <i>Firma</i></td> <td>KARNAM VENKATA MANGA RAJU</td> </tr> <tr> <td>2. <i>Firma</i></td> <td>VAIDHEESWARAN RAMESH</td> </tr> <tr> <td>3. <i>Firma</i></td> <td>R DHILIP KUMAR</td> </tr> <tr> <td>4. <i>Firma</i></td> <td>SHAILESH KUMAR</td> </tr> <tr> <td>5. <i>Firma</i></td> <td>THEJASVI VASUDEVA MURTHY</td> </tr> <tr> <td>6. <i>Firma</i></td> <td>RAVIKUMAR GOKA BALU</td> </tr> <tr> <td>7. <i>Firma</i></td> <td>A GOKUL</td> </tr> <tr> <td>8. <i>Firma</i></td> <td>S RADHIKA</td> </tr> <tr> <td>9. <i>Firma</i></td> <td>AKHILESH MANCHANDANI</td> </tr> </table>		(b) Firma (s)	(c) Nombre (s)	1. <i>Firma</i>	KARNAM VENKATA MANGA RAJU	2. <i>Firma</i>	VAIDHEESWARAN RAMESH	3. <i>Firma</i>	R DHILIP KUMAR	4. <i>Firma</i>	SHAILESH KUMAR	5. <i>Firma</i>	THEJASVI VASUDEVA MURTHY	6. <i>Firma</i>	RAVIKUMAR GOKA BALU	7. <i>Firma</i>	A GOKUL	8. <i>Firma</i>	S RADHIKA	9. <i>Firma</i>	AKHILESH MANCHANDANI
(b) Firma (s)	(c) Nombre (s)																				
1. <i>Firma</i>	KARNAM VENKATA MANGA RAJU																				
2. <i>Firma</i>	VAIDHEESWARAN RAMESH																				
3. <i>Firma</i>	R DHILIP KUMAR																				
4. <i>Firma</i>	SHAILESH KUMAR																				
5. <i>Firma</i>	THEJASVI VASUDEVA MURTHY																				
6. <i>Firma</i>	RAVIKUMAR GOKA BALU																				
7. <i>Firma</i>	A GOKUL																				
8. <i>Firma</i>	S RADHIKA																				
9. <i>Firma</i>	AKHILESH MANCHANDANI																				
(ii) Declaración del solicitante(s) en el país de convención (En caso de que el solicitante en India es diferente al solicitante en el país de convención: el inventor en el país de convención puede firmar el presente a continuación o el solicitante en India puede cargar la cesión del																					

solicitante en el país de convención o adjuntar dicha cesión con esta solicitud o enviar la cesión por correo postal/transmisión electrónica debidamente autenticada dentro del período prescrito).

Yo / nosotros, los solicitantes en el país de convención declaramos que el solicitante en este documento es/es mi/nuestro cesionario o representante legal

(a) Fecha:

(b) Firma (s)

(c) Nombre (s) del firmante

(iii) Declaración del solicitante (s)

☒ Yo / nosotros, el (los) solicitante (s) por la presente declaramos que:

☒ Estoy / Estamos en posesión de la invención mencionada anteriormente.

☒ La descripción ~~provisional~~ / completa relacionada con la invención se presenta con esta solicitud.

☒ La invención, tal como se describe en la descripción, utiliza material biológico de la India y yo o nosotros presentaremos el permiso necesario de la autoridad competente antes de otorgarnos la patente.

☒ No hay motivo legal de objeción (es) a la concesión de la Patente para mí / nosotros.

☒ Somos los verdaderos y primeros inventores.

☒ Soy el cesionario o representante legal de los verdaderos y primeros inventores.

☒ La solicitud o cada una de las solicitudes, cuyos detalles se dan en el párrafo 8, fue la primera solicitud en el país o países de la convención con respecto a mi / nuestra invención (es).

☒ Reclamamos la prioridad de las solicitudes mencionadas anteriormente presentadas en el país / países de la convención y declaramos que no se ha presentado ninguna solicitud de protección con respecto a la invención en un país de la convención antes de esa fecha por mí / nosotros o por cualquier persona de donde yo / nosotros derivamos el título.

☒ Nuestra solicitud en la India se basa en una solicitud internacional en virtud del Tratado de Cooperación en materia de Patentes (PCT), como se menciona en el párrafo 9.

☒ La solicitud está separada de mi / nuestra solicitud, cuyos detalles se dan en el Párrafo 10 y además, esta solicitud puede ser tratada como si se considerara presentada el DD / MM / YYYY bajo la sección 16 de la Ley.

☒ Dicha invención es una mejora o modificación de los detalles de la invención que se dan en el párrafo 11.

13. LOS SIGUIENTES SON LOS ADJUNTOS CON LA SOLICITUD

(a) Forma 2

Item	Detalles	Tasa	Anotaciones
# Descripción Completa/ ~~provisional~~	No. de páginas - 16		

No. de Reivindicaciones	No. de reivindicaciones - 24 y No. de páginas - 6		
Resumen	No. de páginas - 1		
No. de figuras	No. de figuras - 11 y No. de páginas - 11		
# En caso de una descripción completa, si el solicitante desea adoptar los dibujos llenos con su descripción provisional como dibujos o parte de los dibujos para la descripción completa bajo la regla 13 (4), se requiere el número de dichas páginas llenas con la descripción provisional. ser mencionado aquí. (b) una descripción completa en confirmación con la solicitud internacional enmendada antes de que la Autoridad de examen preliminar internacional (IPEA) sea aplicable (2 copias). (c) listado de secuencias en formato electrónico (d) dibujos en confirmación con la solicitud internacional enmendada ante la autoridad de examen preliminar internacional (IPEA) según corresponda (2 copias) (e) Los documentos de prioridad se solicitan para recuperar los documentos de prioridad del DAS (Servicio de acceso digital) si el solicitante ya había solicitado a la oficina de primera presentación que los documentos de prioridad estén disponibles para el DAS. (f) Traducción de documento de prioridad / especificación / Informe de búsqueda internacional / Informe preliminar internacional sobre patentabilidad (g) Declaración y cumplimiento en el formulario 3 (h) Declaración de inventor en el formulario 5 (i) Poder de autoridad			

Tarifa total se está pagando a través del modo de pago en línea Por la presente declaramos que, nuestro leal saber y entender, información y creencia, el hecho y los asuntos aquí descritos son correctos y solicitamos que se nos conceda una patente para dicha invención. Con fecha este día 9 de marzo de 2021 TVS MOTOR COMPANY LIMITED Por su agente y abogado FIRMA
--

(Nikhil Ranjan)

De Khaitan & Co

Reg No IN/PA-1471

A,

El controlador de patentes

La oficina de patentes de Chennai

Nota:

- Repetir casillas en caso de más de una entrada.
- Debe ser firmado por el solicitante o los solicitantes o por un agente de patentes registrado autorizado de lo contrario se mencionó.
- Marque (✓)/cruz (x) a lo que corresponda/no corresponda en la declaración del párrafo 12.
- El nombre del inventor y del solicitante debe indicarse en su totalidad, el apellido al principio.
- Táchese la parte que no corresponda.
- Tarifa: consulte el primer programa

Reivindicaciones:

1. Un ensamblaje de bastidor (**101**) que comprende:
un tubo colector (**102**),

un primer miembro de bastidor (103), extendiéndose dicho primer miembro de bastidor (103) hacia atrás desde dicho tubo colector (102),

uno o más miembros de bastidor inferior (110), extendiéndose dicho miembro de bastidor inferior (110) hacia abajo desde dicho tubo colector (102),

una caja de conexiones (105), estando configurada dicha caja de conexiones (105) para recibir dicho primer miembro de bastidor (103),

uno o más segundos miembros de bastidor (104), extendiéndose dicho segundo miembro de bastidor (104) hacia abajo desde dicha caja de conexiones (105), y

un par de rieles de asiento izquierdo y derecho (106L, 106R) que se extienden hacia atrás desde dicha caja de conexiones (105).

2. El ensamblaje de bastidor (101) según la reivindicación 1, en el que dicho ensamblaje de bastidor incluye un miembro de montaje de suspensión trasera (202), dicho miembro de montaje de suspensión trasera (202) está conectado a dicha caja de conexiones (105) y dicho uno o más segundo miembro de bastidor (104).
3. El ensamblaje de bastidor (101) según la reivindicación 1, en el que dicho ensamblaje de bastidor incluye un refuerzo de puente (201), dicho refuerzo de puente (201) está conectado a dicho par de rieles de asiento izquierdo y derecho (106L, 106R), y a dicho miembro de montaje de suspensión trasera (202).
4. El ensamblaje de bastidor (101) según la reivindicación 1 o la reivindicación 2, en el que dicho ensamblaje de bastidor incluye un miembro de refuerzo delantero (203), dicho miembro de refuerzo delantero (203) unido a dicha caja de conexiones (105) y dicho uno o más segundo miembro de bastidor (104).
5. El ensamblaje de bastidor (101) según la reivindicación 1, en el que dicha caja de conexiones (105) comprende una placa de refuerzo LH (105L) y una placa de refuerzo RH (105R).
6. El ensamblaje de bastidor (101) según la reivindicación 1, en el que cada riel de asiento de dicho par de rieles de asiento (106L, 106R) comprende un eje neutral (E-E'), y en el que una superficie superior de dicho miembro de montaje de suspensión trasera (202) se extiende verticalmente por encima de dicho eje neutral (E-E').
7. El ensamblaje de bastidor (101) según la reivindicación 1, en el que dicha caja de conexiones (105) incluye una primera porción receptora (105F) que tiene una sección transversal sustancialmente circular capaz de recibir un miembro de bastidor de sección transversal congruente.

8. El ensamblaje de bastidor **(101)** según la reivindicación 1, en el que dicha caja de conexiones **(105)** incluye una porción central **(105M)** que tiene una sección transversal sustancialmente rectangular.
9. El ensamblaje de bastidor **(101)** según la reivindicación 1, en el que dicha caja de conexiones **(105)** incluye una porción trasera **(105R)** que tiene una sección transversal rectangular truncada que está configurada para recibir una pluralidad de miembros de bastidor en una región superior y una región inferior.
10. El ensamblaje de bastidor **(101)** según la reivindicación 2, en el que dicho miembro de montaje de suspensión trasera **(202)** incluye
 - un primer brazo extensible **(202A)**,
 - un segundo brazo extensible **(202B)**, y
 - una superficie superior intermedia **(202C)**, dicha superficie superior intermedia **(202C)** conecta dicho primer brazo extensible **(202A)** y dicho segundo brazo extensible **(202B)**,
 - en el que uno o más orificios de montaje **(202AH, 202BH)** se proporcionan en dicho primer brazo extensible **(202A)** y en dicho segundo brazo extensible **(202B)**,
 - una primera pestaña **(202AF)** que se extiende hacia fuera a lo largo de dicho primer brazo extensible **(202A)** y una segunda pestaña **(202B)** que se extiende hacia fuera a lo largo de dicho segundo brazo extensible **(202B)**, y
 - en el que dicha primera pestaña **(202A)** y dicha segunda pestaña **(202B)** se extienden verticalmente por encima de dicho uno o más orificios de montaje **(202AH, 202BH)**.
11. El ensamblaje de bastidor **(101)** según la reivindicación 3, en el que dicho refuerzo de puente **(201)** incluye
 - una porción central **(201A)**,
 - una porción lateral izquierda **(201L)**, y
 - una porción lateral derecha **(201R)**, dicha porción lateral izquierda **(201L)** y dicha porción lateral derecha **(201R)** se extienden hacia fuera desde dicha porción central **(201A)**,
 - comprendiendo dicha porción central **(201A)** un recorte **(201C)** configurado para recibir dicho miembro de montaje de suspensión trasera **(202)**, y una porción de conexión **(201B)**, estando configurada dicha porción de conexión **(201B)** para recibir una porción de dicha caja de conexiones **(105)**.

12. El ensamblaje de bastidor (101) según la reivindicación 8, en el que dicho miembro lateral izquierdo (201L) y dicho miembro lateral derecho (201R) están conectados a dicho par de rieles de asiento izquierdo y derecho (106L, 106R).
13. El ensamblaje de bastidor (101) según la reivindicación 4, en el que dicho miembro de refuerzo delantero (203) incluye
- una región central (203A), estando configurada dicha región central (203A) para tener uno o más agujeros (203H), y
 - una pestaña del lado izquierdo (203L), y
 - una pestaña lateral derecha (203R),
- en el que dicha pestaña del lado izquierdo (203L) y dicha pestaña del lado derecho (203R) se extienden hacia los lados desde dicha región central (203A),
- en el que dicha pestaña del lado izquierdo (203L) y dicha pestaña del lado derecho (203R) comprenden uno o más perfiles capaces de unirse a uno o más componentes del bastidor.
14. El ensamblaje de bastidor (101) según la reivindicación 13, en el que dicha pestaña lateral izquierda (203L) y dicha pestaña lateral derecha (203R) incluyen un perfil superior (203LT, 203RT) que conecta una porción inferior de dicha caja de conexiones (105) .
15. El ensamblaje de bastidor (101) según la reivindicación 13, en el que dicha pestaña lateral izquierda (203L) y dicha pestaña lateral derecha (203R) incluyen un relieve central (203LC, 203RC) para acomodar la conexión entre dicha caja de conexiones (105) y dicho segundo miembro de bastidor (104).
16. El ensamblaje de bastidor (101) según la reivindicación 13, en el que dicha pestaña lateral izquierda (203L) y dicha pestaña lateral derecha (203R) incluyen un perfil inferior (203LB, 203RB) para conectar una zona superior (104RT, 104LT) de dicho segundo miembro de bastidor (104).
17. Una caja de conexiones (105) para un ensamblaje de bastidor (101) de un vehículo tipo sillín (100), comprendiendo dicha caja de conexiones (105):
- una placa de refuerzo LH (105L),
 - una placa de refuerzo RH (105R),
 - una primera porción receptora (105F) formada en una unión frontal de dicha placa de refuerzo LH (105L) y dicha placa de refuerzo RH (105R),
 - una segunda porción receptora (105S) formada en una unión inferior de dicha placa de refuerzo LH (105L) y dicha placa de refuerzo RH (105R), dicha segunda porción receptora (105S) incluye un rebaje receptor del segundo bastidor (105B),

un primer rebaje receptor del riel del asiento (**105LR**) formado en dicha placa de refuerzo RH (**105R**), y

un segundo rebaje receptor del riel del asiento (**105RR**) formado en dicha placa de refuerzo LH (**105L**).

18. La caja de conexiones (**105**) para un ensamblaje de bastidor (**101**) de un vehículo tipo sillín (**100**), según se reivindica en la reivindicación 17, en la que dicha caja de conexiones (**105**) incluye una porción receptora delantera (**105F**) que tiene una sección transversal sustancialmente circular que está configurada para recibir un primer miembro de bastidor (**103**).
19. La caja de conexiones (**105**) para un ensamblaje de bastidor (**101**) de un vehículo tipo sillín (**100**), según la reivindicación 17, en la que dicha caja de conexiones (**105**) incluye una porción intermedia (**105M**) que tiene una sección transversal sustancialmente rectangular.
20. La caja de conexiones (**105**) para un ensamblaje de bastidor (**101**) de un vehículo tipo sillín (**100**), según la reivindicación 17, en la que dicha caja de conexiones (**105**) incluye una porción (**105R**) que tiene una sección transversal rectangular truncada capaz de recibir una pluralidad de miembros de bastidor en una región superior y una región inferior.
21. Un miembro de montaje de suspensión trasera (**202**), comprendiendo dicho miembro de montaje de suspensión trasera (**202**): un cuerpo sustancialmente en forma de U que tiene un primer brazo extensible (**202A**), un segundo brazo extensible (**202B**) y una superficie superior intermedia (**202C**) que conecta dicho primer brazo extensible (**202A**) y dicho segundo brazo extensible (**202B**), donde se proporcionan uno o más orificios de montaje (**202BH**) en dicho primer brazo extensible (**202A**) y en dicho segundo brazo extensible (**202B**), una primera pestaña (**202AF**) que se extiende hacia fuera a lo largo de dicho primer brazo extensible (**202A**) y una segunda pestaña (**202BF**) que se extiende hacia fuera a lo largo de dicho segundo brazo extensible (**202B**), y donde dicha primera pestaña (**202AF**) y dicha segunda pestaña (**202BF**) se extienden verticalmente por encima de dicho uno o más orificios de montaje (**202BH**).
22. Un refuerzo de puente (**201**) que comprende una porción central (**201A**), una porción lateral izquierda (**201L**) y una porción lateral derecha (**201R**), extendiéndose dicha porción lateral izquierda (**201L**) y dicha porción lateral derecha (**201R**) extendiéndose hacia fuera desde dicha porción central (**201A**), comprendiendo dicha porción central (**201A**) un recorte (**201C**), estando

configurada dicha porción central para recibir un miembro de bastidor conectado hacia atrás y una porción de conexión (201B) capaz de recibir un miembro de bastidor conectado hacia adelante.

23. Un miembro de refuerzo delantero (**203**) que comprende:

una región central (**203A**) estando configurada para tener uno o más agujeros (**203H**), una pestaña del lado izquierdo (**203L**) y una pestaña del lado derecho (**203R**), donde dicha pestaña del lado izquierdo (**203L**) y dicha pestaña del lado derecho (**203R**) se extienden lateralmente desde dicha región central (**203A**), dicha pestaña del lado izquierdo (**203L**) y dicha pestaña lateral derecha (**203R**) incluye un perfil superior (**203LT**, **203RT**), un perfil inferior (**203LB**, **203RB**).

24. Un vehículo tipo sillín (**100**) que comprende:

un ensamblaje de bastidor (**101**) que tiene un tubo colector (**102**),
un primer miembro de bastidor (**103**) que se extiende hacia atrás desde dicho tubo colector (**102**),
uno o más bastidores inferiores (**110**) que se extienden hacia abajo desde dicho tubo colector (**102**),
una caja de conexiones (**105**) capaz de recibir dicho primer miembro de bastidor (**103**),
uno o más segundos miembros de bastidor (**104**) que se extienden hacia abajo desde dicha caja de conexiones (**105**),
un par de rieles de asiento (**106R**, **106L**) que se extienden hacia atrás desde dicha caja de conexiones (**105**),
un miembro de montaje de la suspensión trasera (**202**) conectado a dicha caja de conexiones (**105**), y dicho uno o más segundos miembros de bastidor (**104**),
un refuerzo de puente (**201**) que conecta dicho par de rieles de asiento (**106R**, **106L**), dicho refuerzo de puente (**201**) unido a dicho miembro de montaje de suspensión trasera (**203**), y
un miembro de refuerzo frontal (**203**) unido a dicha caja de conexiones (**105**) y dicho uno o más segundos miembros de bastidor (**104**);
un filtro de aire (**701**) dispuesto hacia atrás de dicho miembro de montaje de suspensión trasera (**202**), en el que dicho filtro de aire (**701**) está montado en un orificio de montaje de filtro de aire (**105AH**) de dicha caja de conexiones (**105**);
un soporte de batería (**702**) dispuesto hacia delante de dicho miembro de montaje de suspensión trasera (**202**), en el que dicho soporte de batería (**702**) está montado en un orificio de montaje de soporte de batería (**105BH**) de dicha caja de conexiones (**105**).

25. El vehículo tipo sillín según la reivindicación 24, en el que dicho elemento de montaje de la suspensión trasera (**202**) comprende uno o más orificios de montaje (**202AH**, **202BF**) para montar un amortiguador (**108**), en el que dicho uno o más orificios de montaje (**202AH**, **202BH**) están

dispuestas en la parte trasera de dicho orificio de montaje del filtro de aire **(105AH)** y dicho orificio de montaje del soporte de la batería **(105BH)** visto desde un lado de dicho vehículo **(100)**.

26. El vehículo tipo sillín **(100)** según la reivindicación 24, en el que dicho ensamblaje de bastidor **(101)** comprende un par de segundos miembros de bastidor izquierdo y derecho que se extienden hacia abajo **(104L, 104R)** unidos a dicha caja de conexiones **(105)**, en el que una bandeja **(801)** está configurada para recibir uno o más componentes electrónicos dispuestos sobre una superficie superior de dicha caja de conexiones **(105)**.
27. Un método de fabricación de un ensamblaje de bastidor, en el que dicho método comprende los pasos de:
- Construir una caja de conexiones (Paso **S101**); y
- Unir uno o más miembros de bastidor a dicha caja de conexiones (Paso **S102**).
28. El método de fabricación de un ensamblaje de bastidor como se reivindica en la reivindicación 27, en el que la construcción de dicha caja de conexiones comprende los pasos de
- formar una placa de refuerzo LH y una placa de refuerzo RH (Paso **S101A**); y
- unir dicha placa de refuerzo formada LH y dicha placa de refuerzo RH (Paso **S101B**).
29. El método de fabricación de un ensamblaje de bastidor según la reivindicación 27, en el que dicha unión de uno o más elementos de bastidor a dicha caja de conexiones comprende los pasos de:
- Unir un primer miembro de bastidor y un segundo miembro de bastidor a dicha caja de conexiones (Paso **S102A**);
- Unir un par de rieles de asiento a dicha caja de conexiones (Paso **S102B**);
- Unir un soporte de montaje de suspensión trasera a dicha caja de conexiones y dicho segundo miembro de bastidor (Paso **S102C**);
- Unir un refuerzo de puente a dicha caja de conexiones y dicho par de rieles de asiento (Paso **S102D**);
- y
- Unir un refuerzo frontal a dicha caja de conexiones y dicho segundo miembro de bastidor (Paso **S102E**).

Fecha 9 de Febrero de 2021

Firma digital

Chandan Chavan

Jefe PI

TVS Motor Company Limited