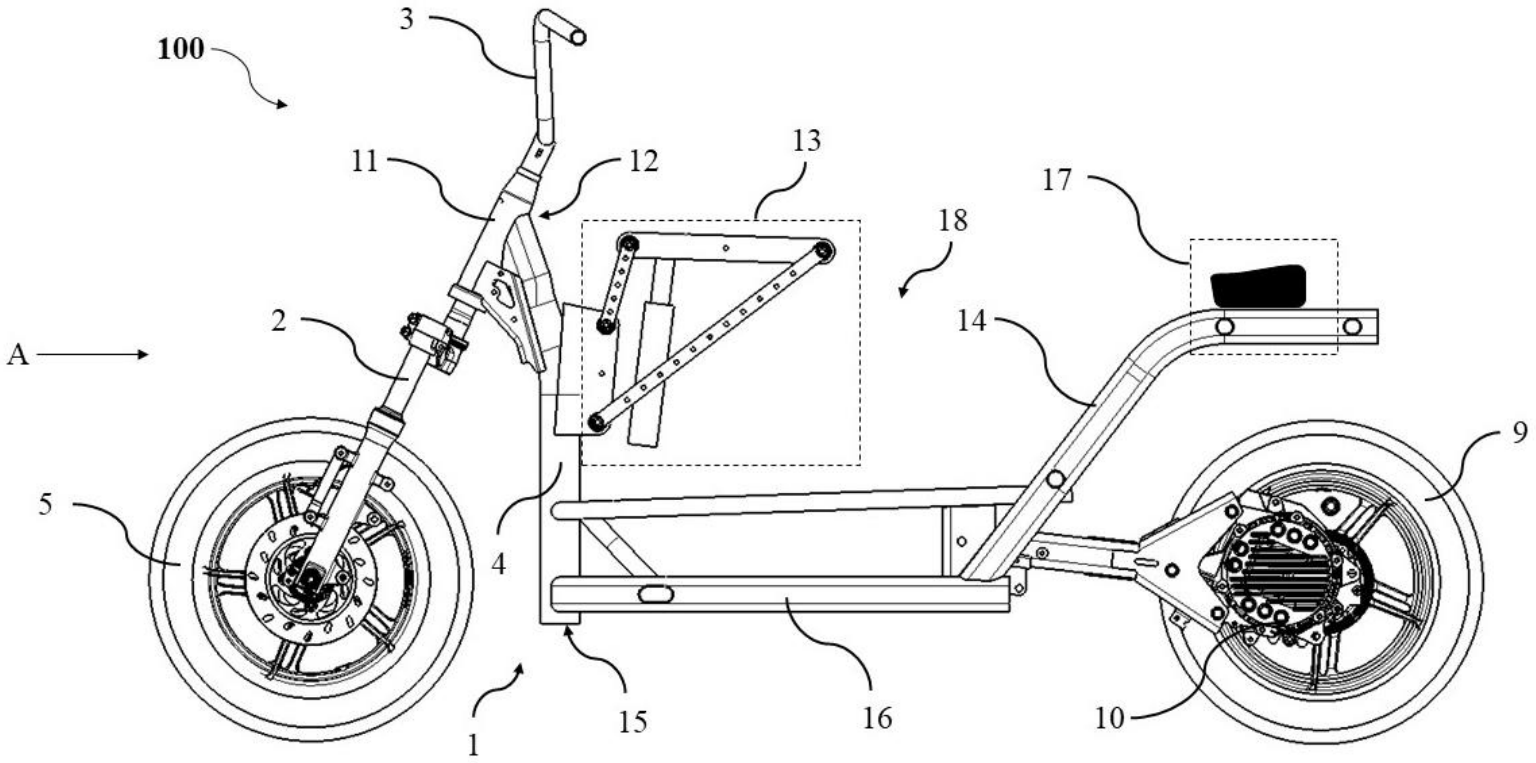


Figure 1

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/No. 2772

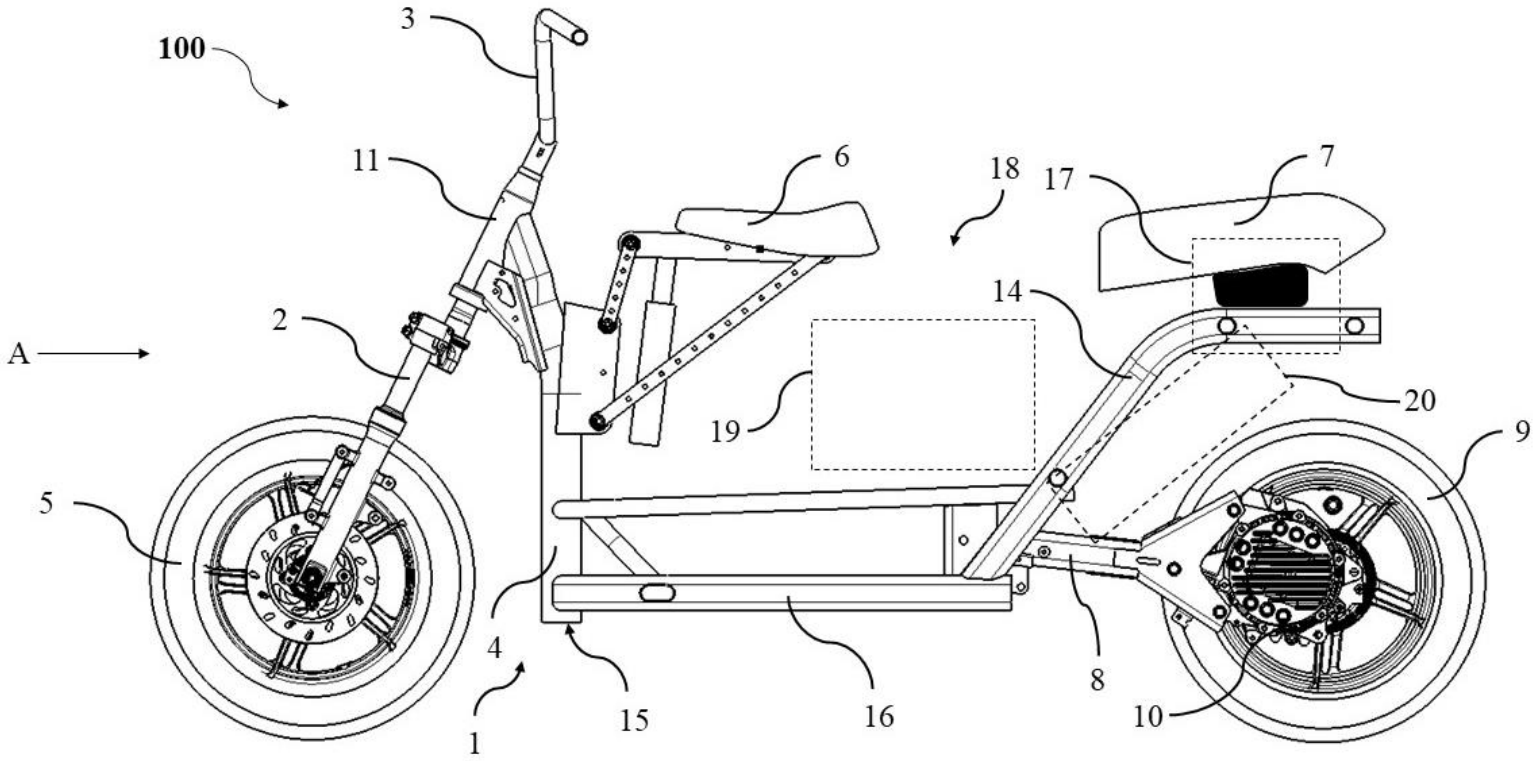


Figure 2

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/No. 2772

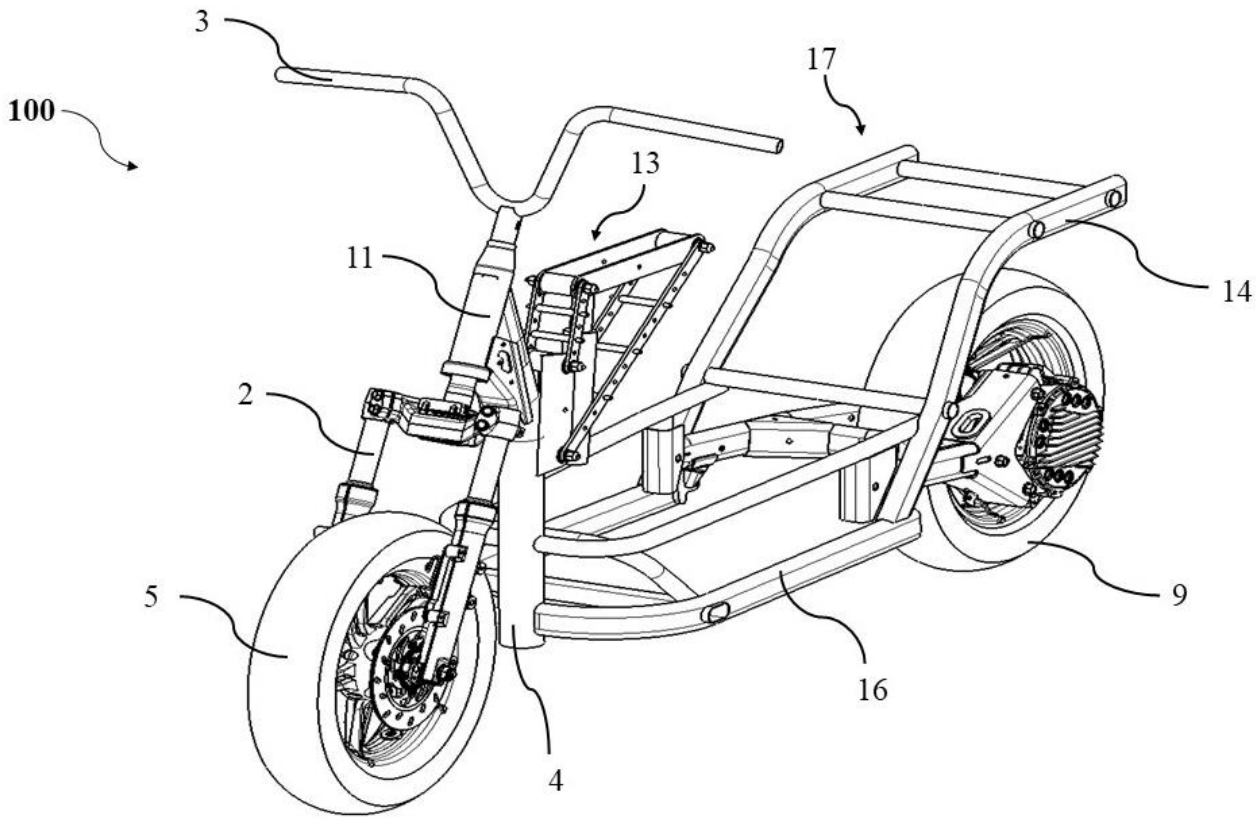


Figure 3

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/No. 2772

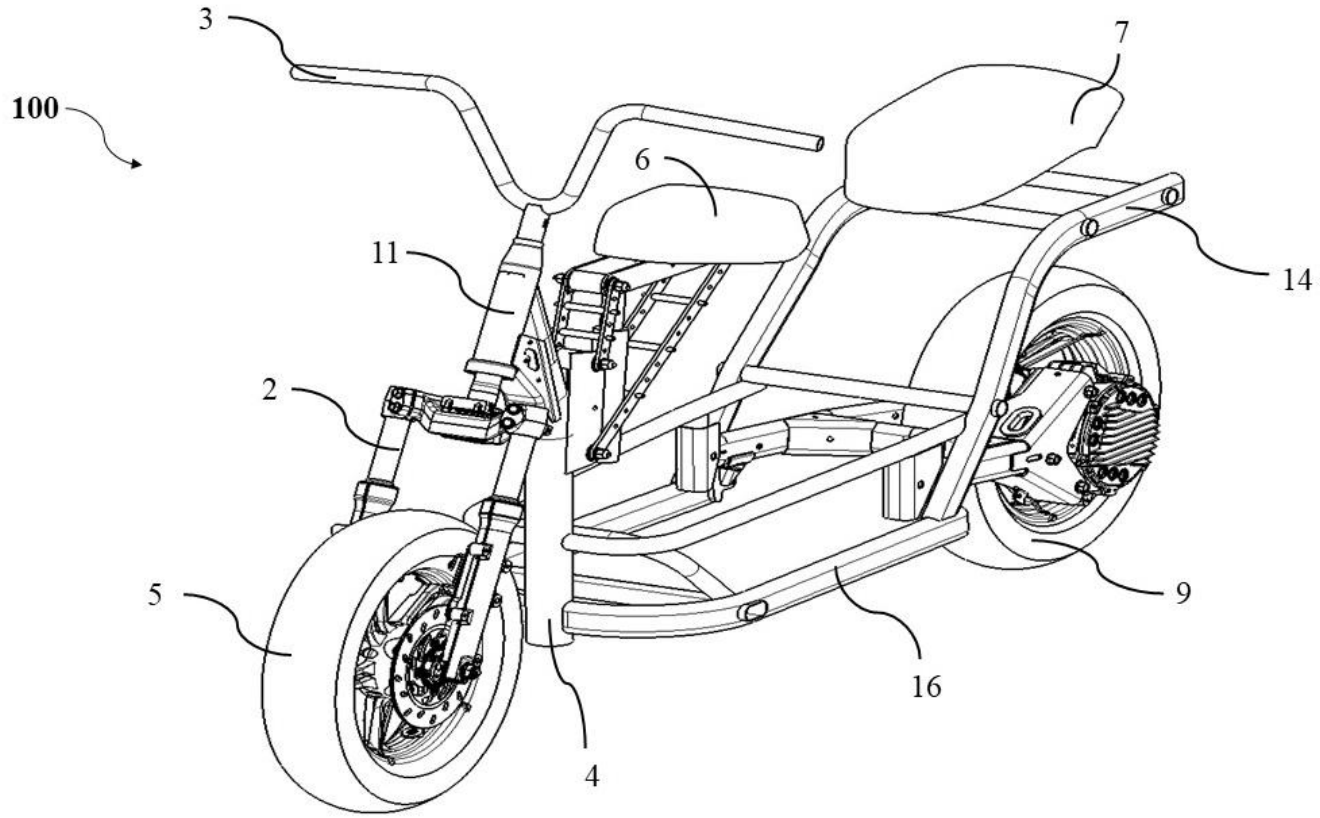


Figure 4

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/No. 2772

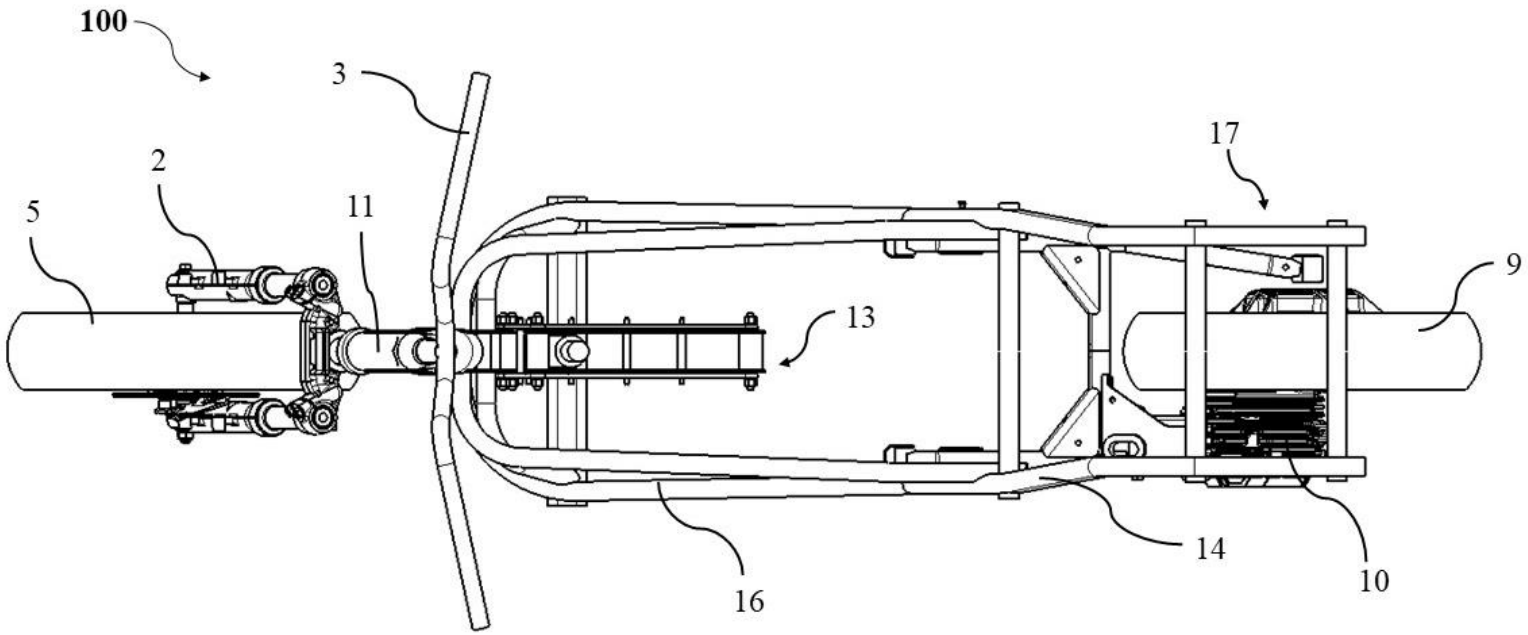


Figure 5

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/No. 2772

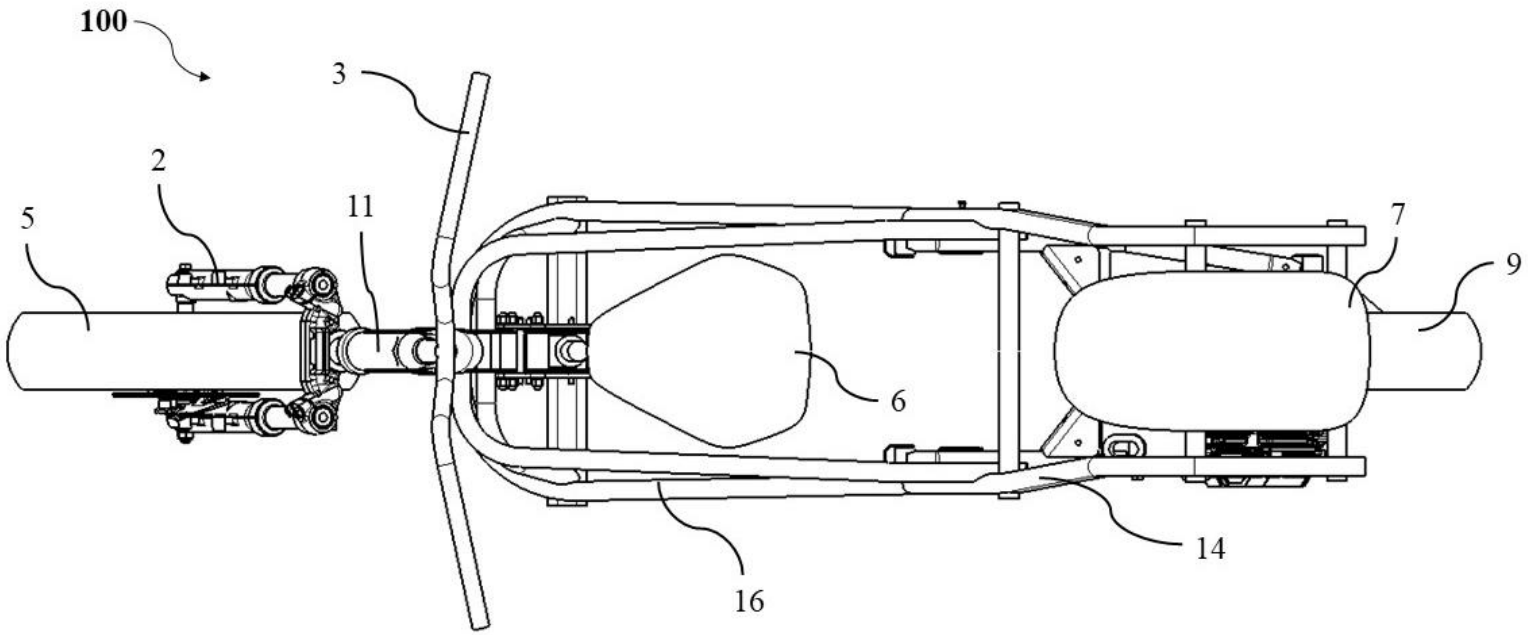


Figure 6

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/No. 2772



Figure 7a

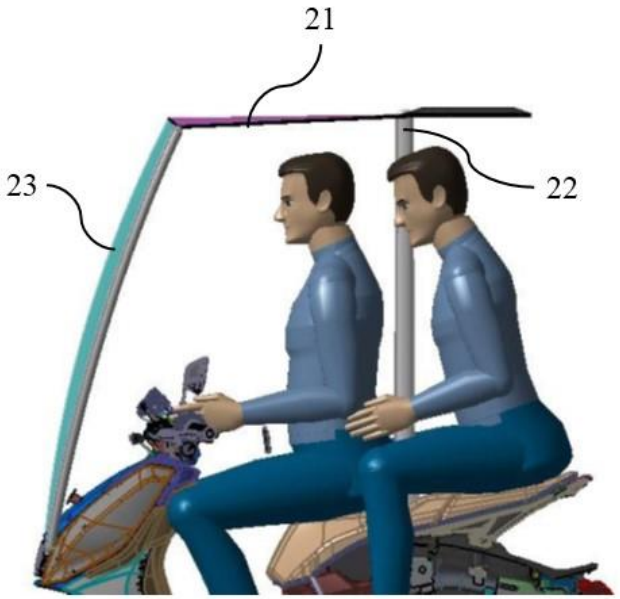


Figure 7b

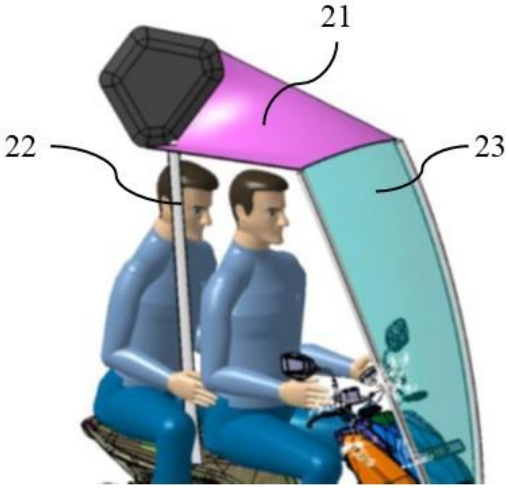


Figure 7c

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/No. 2772

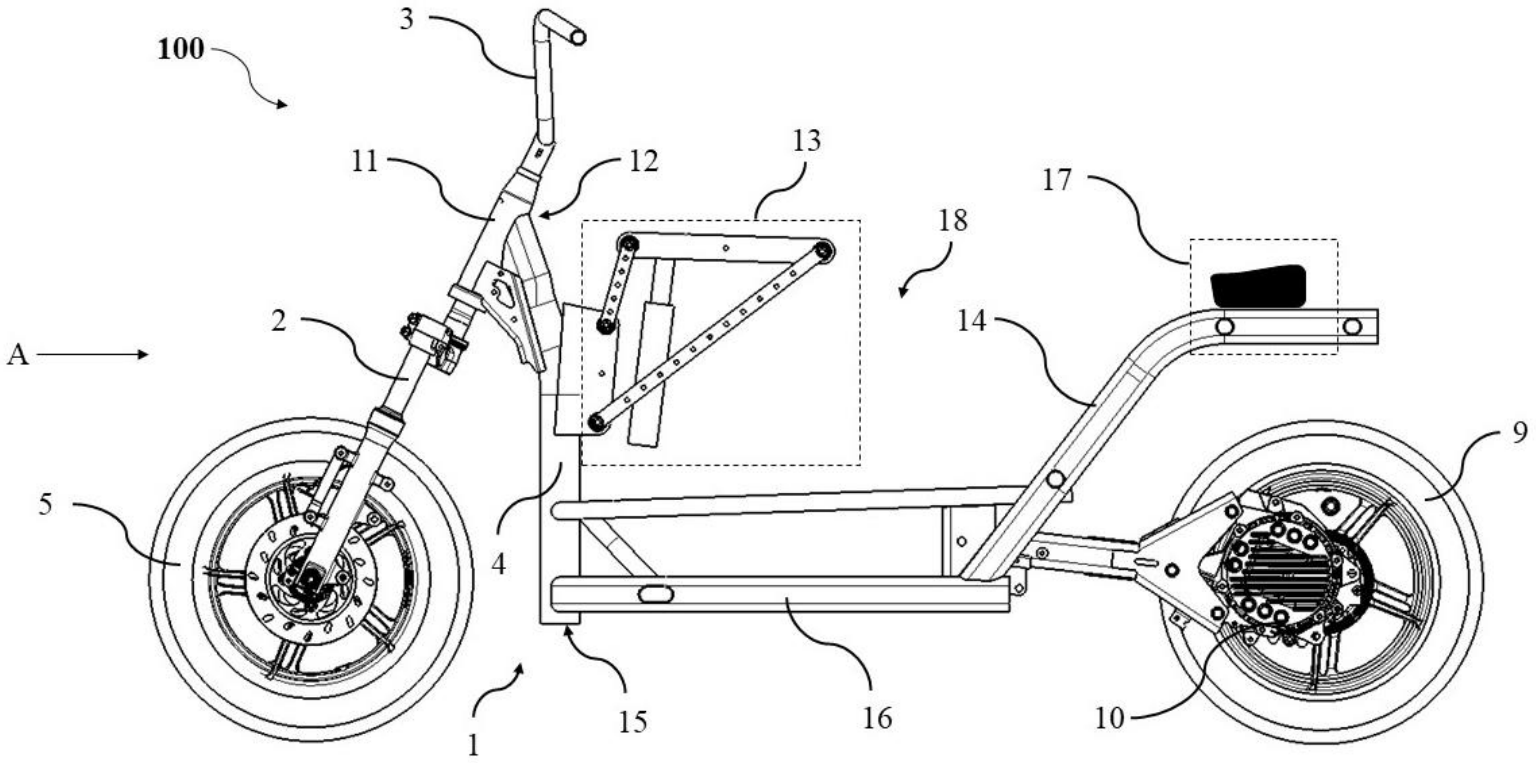


Figure 1

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/NO.-2772
Digitally signed and filed through E-filing

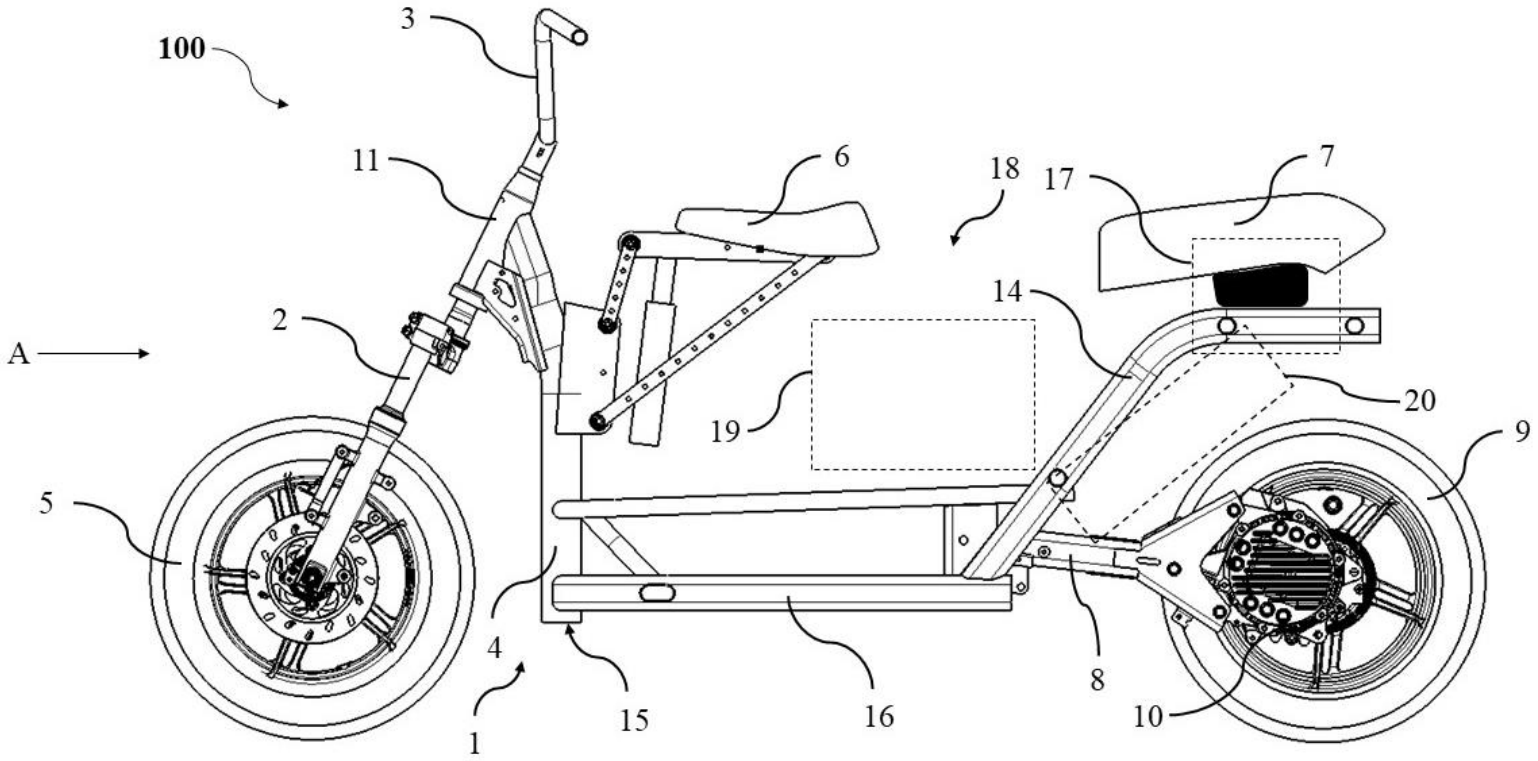


Figure 2

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/NO.-2772
Digitally signed and filed through E-filing

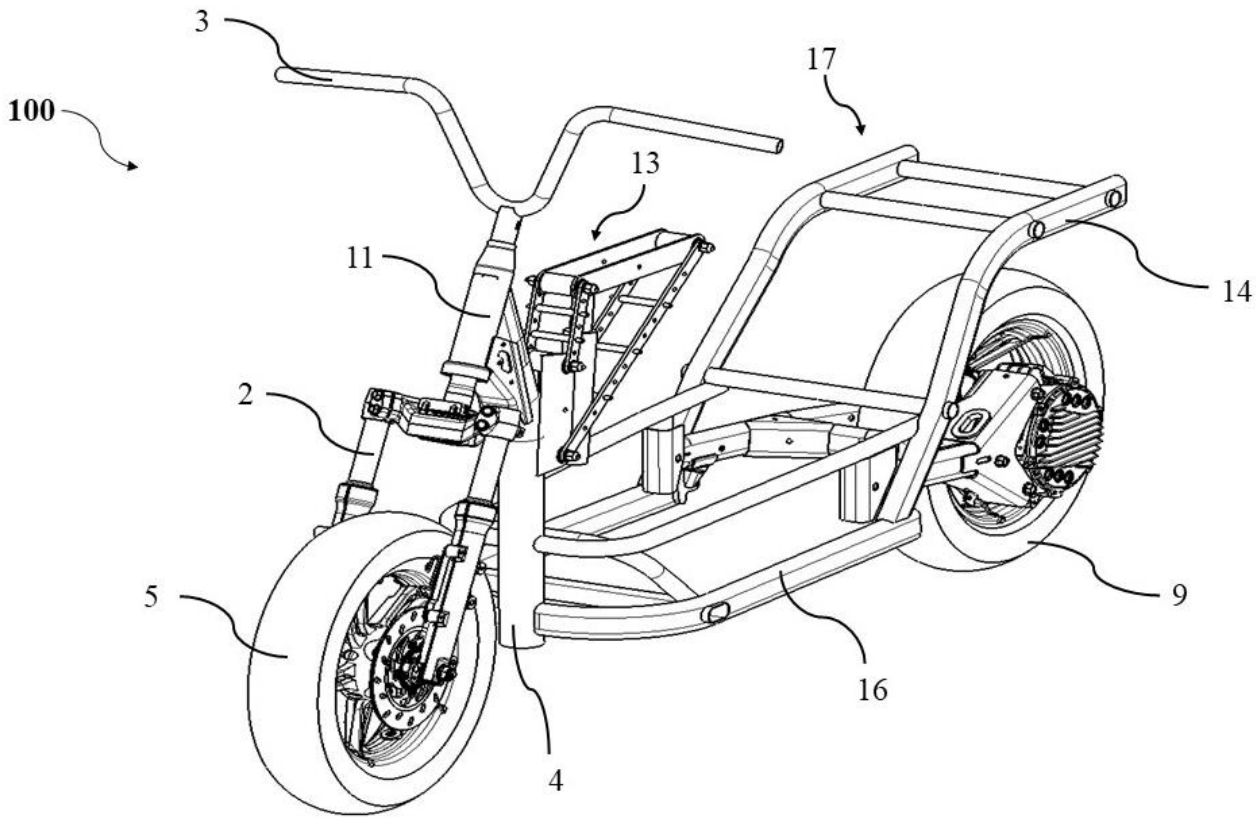


Figure 3

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/NO.-2772
Digitally signed and filed through E-filing

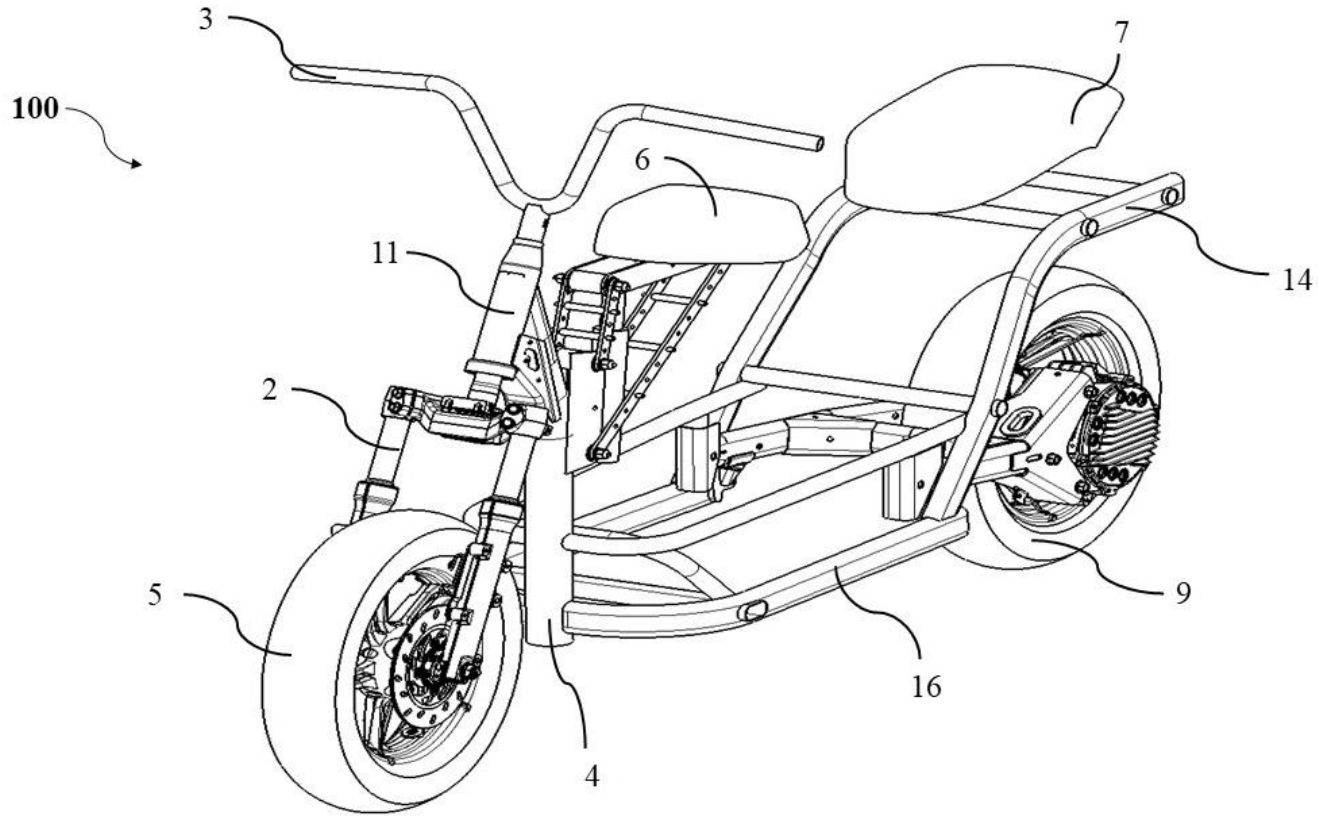


Figure 4

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/NO.-2772
Digitally signed and filed through E-filing

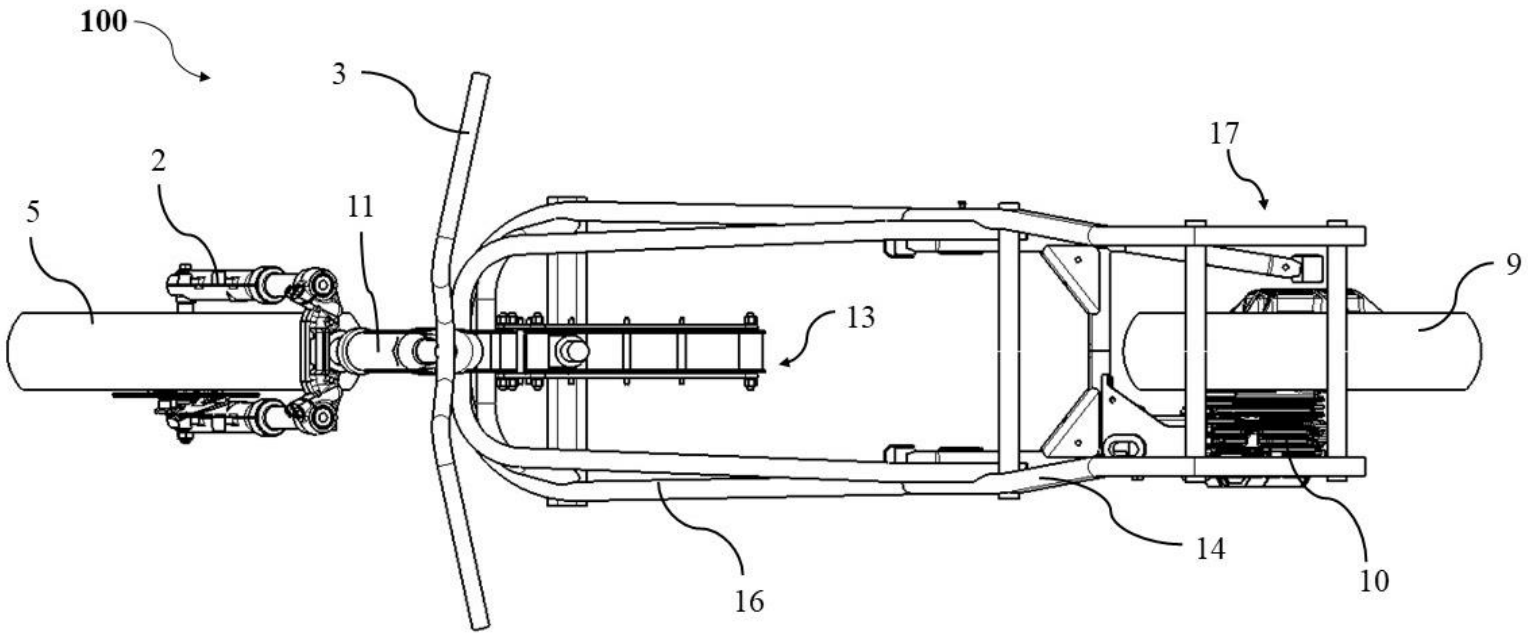


Figure 5

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/NO.-2772
Digitally signed and filed through E-filing

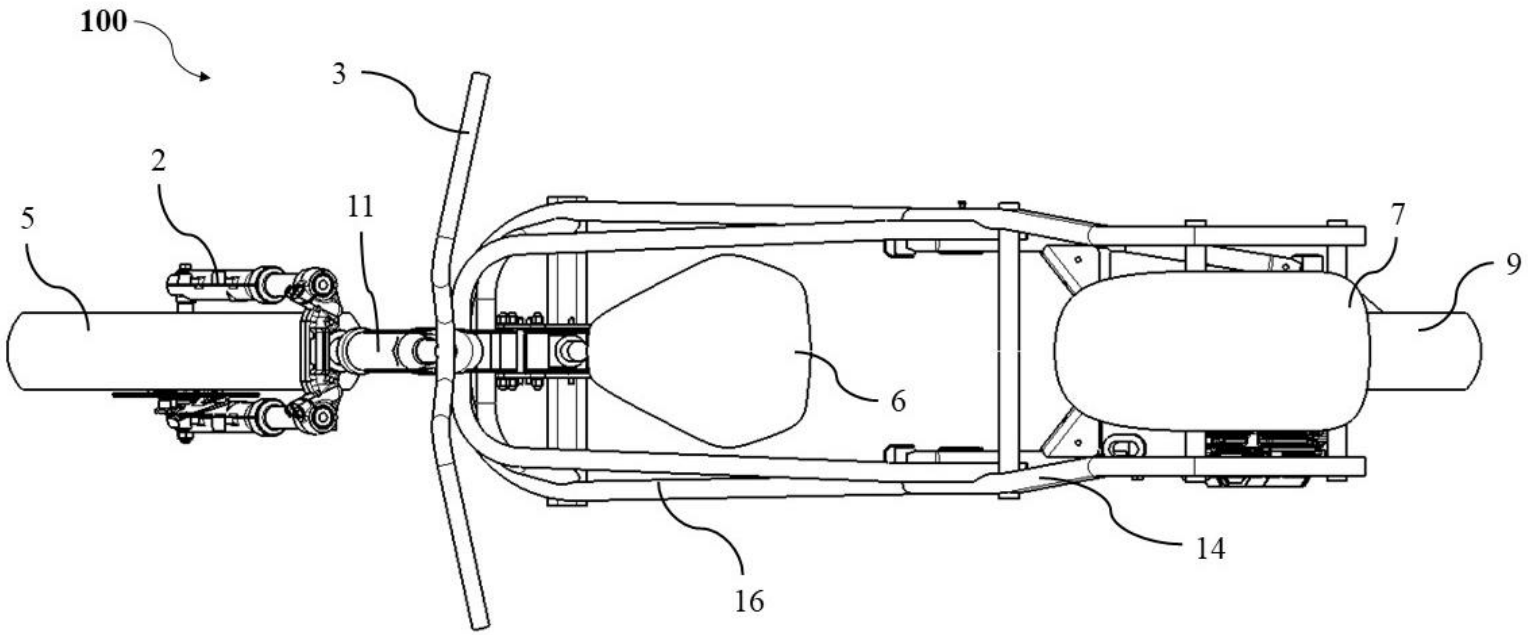


Figure 6

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/NO.-2772
Digitally signed and filed through E-filing



Figure 7a

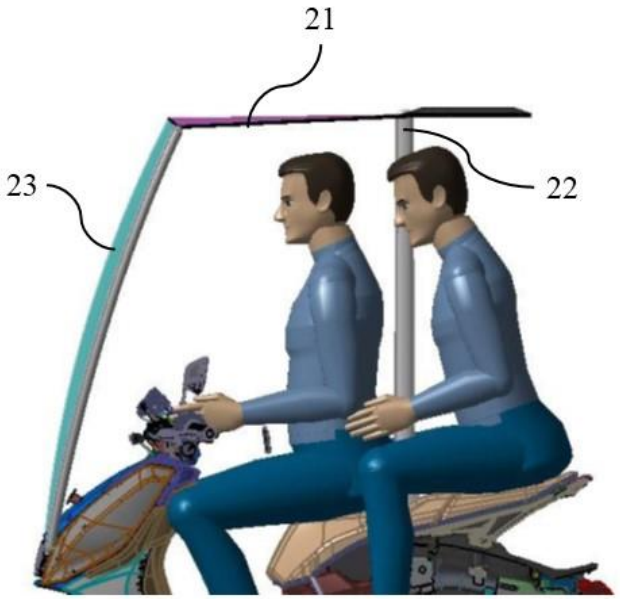


Figure 7b

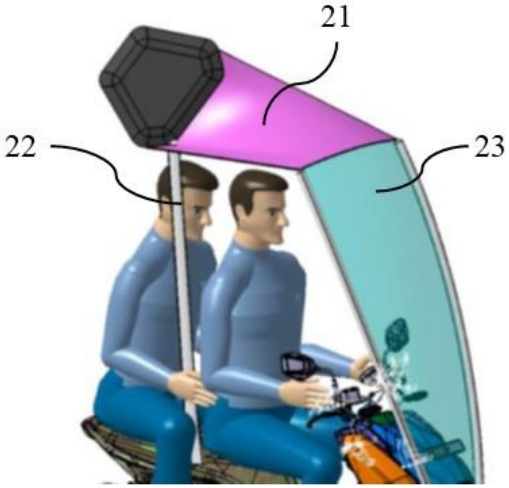


Figure 7c

SIDDHANT PARVAT
Of K & S PARTNERS
AGENT FOR THE APPLICANT
IN/PA/NO.-2772
Digitally signed and filed through E-filing

FORM 2

THE PATENTS ACT 1970

[39 OF 1970]
&
THE PATENTS RULES, 2003

COMPLETE SPECIFICATION

[See section 10; rule 13]

TITLE: "A BODY FRAME FOR A TWO-WHEELED VEHICLE"

Name and Address of the Applicant:
HERO MOTOCORP LIMITED, an Indian company, of The Grand Plaza, Plot No. 2, Nelson Mandela Road, Vasant Kunj- Phase-II, New Delhi, 110070, India

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

TECHNICAL FIELD

[001] The present disclosure, in general, relates to the field of vehicles. Particularly, but not exclusively, the present disclosure relates to body frame of a vehicle. Further, embodiments of the present disclosure relate to a passenger seating arrangement of a two-wheeled vehicle.

BACKGROUND OF THE DISCLOSURE

[002] Conventionally three-wheeled vehicles and four-wheeled vehicles are used for taxi services, and use of such vehicles in densely populated urban areas, is inconvenient due to traffic congestion. Further, use of said taxi services in traffic congested areas increases associated travel time, results in increased emissions and is discomforting (both mentally and physically) to passengers. To address such problems associated with traffic congestion, commuters are encouraged to adopt pooling to make efficient use of space, fuel, and transport capacity of vehicles.

[003] In view of above, in recent days, two-wheeler taxi services are being recognized as a viable alternative to conventional three-wheeler and four-wheeler vehicle taxi services. Also, such two-wheeler taxi services are increasingly employed in delivery of goods, articles, groceries, and food items. Two-wheeler taxi services attempt to address problem of inefficient use of space, fuel, and transport capacity, associated with conventional three-wheeled and four-wheeled vehicle taxi services. However, certain inconveniences and drawbacks associated therewith has prevented widespread adoption of such two-wheeler taxi services. One of those inconvenience lies in existing seating arrangements of two-wheeled vehicles, where both rider and pillion passenger are seated adjacent to each other without any physical distance therebetween. Further, in two-wheelers, rider seat and pillion passenger seat are either at same elevation or at different elevation. Having the rider seat and the pillion passenger seat at same elevation may obstruct view of the pillion passenger. Further, having the rider seat and the pillion passenger

seat at different elevation, causes the pillion passenger to bump into the rider, on sudden application of brakes and in bad road conditions.

[004] The present disclosure is directed to overcome one or more limitations stated above or any other limitations associated with the conventional configuration of the seating arrangements/systems used in two-wheelers.

SUMMARY OF THE DISCLOSURE

[005] One or more shortcomings of the prior art are overcome by a body frame for a two-wheeled vehicle as claimed and additional advantages are provided through the two-wheeled vehicle including the body frame as claimed in the present disclosure. Additional features and advantages are realized through the techniques of the present disclosure. Other embodiments and aspects of the disclosure are described in detail herein and are considered a part of the claimed disclosure.

[006] In one non-limiting embodiment of the present disclosure, a body frame for a two-wheeled vehicle is disclosed. The body frame includes a head tube and a down frame. A first end of the down frame extends downward and rearward from the head tube. The body frame further includes a first seat support supported by at least one of the head tube and the down frame. The body frame further includes a main frame member extending rearward from the down frame. The body frame further includes a rear frame extending upward and rearward from the main frame member. The body frame also includes a second seat support secured to the rear frame. The second seat support is separate and positioned away from the first seat support defining a space therebetween.

[007] In an embodiment of the present disclosure, the space defined between the first seat support and the second seat support defines a legroom for a pillion passenger seated on the second seat support.

[008] In an embodiment of the present disclosure, the first seat support is supported at a distance from the head tube defining a secondary space between the head tube and the first seat support. The secondary space defines a legroom for a rider.

[009] In an embodiment of the present disclosure, at least one of the first seat support and the second seat support is pivotally supported on the body frame.

[010] In an embodiment of the present disclosure, a handlebar of the two-wheeled vehicle is positioned frontward relative to the head tube.

[011] In an embodiment of the present disclosure, at least one of a portion of an internal combustion engine and a portion of a motor is covered by the second seat support.

[012] In another non-limiting embodiment of the present disclosure, a two-wheeled vehicle is disclosed. The two-wheeled vehicle includes a steering mechanism, a power unit, a transmission, and a body frame supporting a front wheel and rear wheel. The body frame includes a head tube and a down frame. A first end of the down frame extends downward and rearward from the head tube. The body frame further includes a first seat support supported by at least one of the head tube and the down frame. The body frame further includes a main frame member extending rearward from the down frame. The body frame further includes a rear frame extending upward and rearward from the main frame member. The body frame also includes a second seat support secured to the rear frame. The second seat support is separate and positioned away from the first seat support defining a space therebetween.

[013] In an embodiment of the present disclosure, the two-wheeled vehicle includes a rider seat secured to the first seat support and a pillion passenger seat secured to the second seat support.

[014] In an embodiment of the present disclosure, the rider seat is coupled to at least one a head tube and the down frame of the body frame.

[015] In an embodiment of the present disclosure, an elevation of at least one of the first seat support and the second seat support is adjustable relative to the body frame.

[016] In an embodiment of the present disclosure, the pillion passenger seat is positioned substantially above the rear wheel and elevated from the rear wheel.

[017] In an embodiment of the present disclosure, the two-wheeled vehicle comprises a convertible roof coupled to the body frame. The convertible roof is configured to be operated between an extended condition and a retracted condition in a lengthwise direction of the vehicle.

[018] In an embodiment of the present disclosure, the two-wheeled vehicle comprises a support pillar extending upwardly from at least one of rear end and side portion of the body frame. The support pillar is configured to support the convertible roof in the extended condition.

[019] In an embodiment of the present disclosure, the steering mechanism includes a handlebar, the handlebar extending forwardly from the head tube.

[020] In an embodiment, the body frame and the vehicle including the body frame of the present disclosure overcomes drawbacks associated with existing seating arrangements of two-wheeled vehicles. The body frame of the present disclosure is configured to provide legroom to the pillion passenger as well as rider, whereby eliminating inconveniences associated with existing seating arrangements of two-wheeled vehicles. The body frame and the vehicle including the body frame of the present disclosure facilitates maintaining physical distance between the pillion passenger and the rider. Also, the configuration of the body frame enables adjustment of elevation of the rider seat and the pillion passenger seat independent of each other. Further, the legroom defined between the first seat support and the

second seat support may be used as storage space for goods, articles, groceries, and food items.

[021] The foregoing summary is illustrative only and is not intended to be in any way limiting. In addition to the illustrative aspects, embodiments, and features described above, further aspects, embodiments, and features will become apparent by reference to the drawings and the following detailed description.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

[022] The novel features and characteristics of the disclosure are set forth in the appended claims. The disclosure itself, however, as well as a preferred mode of use, further objectives, and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying figures. One or more embodiments are now described, by way of example only, with reference to the accompanying figures wherein like reference numerals represent like elements and in which:

[023] Figure 1 illustrates a schematic side view of a vehicle including a body frame, in accordance with an embodiment of the present disclosure;

[024] Figure 2 illustrates another schematic side view of the vehicle of Figure 1;

[025] Figure 3 illustrates a perspective view of the vehicle of Figure 1;

[026] Figure 4 illustrates another perspective view of the vehicle of Figure 2;

[027] Figure 5 illustrates a top view of the vehicle of Figure 1; and

[028] Figure 6 illustrates top view of the vehicle of Figure 2;

[029] Figures 7a, 7b and 7c illustrate perspective views of a vehicle including a convertible roof, a support pillar, and a windshield, that may be implemented in the vehicle of the present disclosure.

[030] The figures depict embodiments of the disclosure for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative embodiments of the frame illustrated herein may be employed without departing from the principles of the disclosure described herein.

DETAILED DESCRIPTION

[031] While the embodiments in the disclosure are subject to various modifications and alternative forms, specific embodiments thereof have been shown by the way of example in the figures and will be described below. It should be understood, however that it is not intended to limit the disclosure to the particular forms disclosed, but on the contrary, the disclosure is to cover all modifications, equivalents, and alternative falling within the scope of the disclosure.

[032] Before describing detailed embodiments, it may be observed that the novelty and inventive step that are in accordance with the present disclosure resides in a body frame for a two-wheeled vehicle. It is to be noted that a person skilled in the art can be motivated from the present disclosure and modify the various constructions of the body frame, and the two-wheeled vehicle including the body frame of the present disclosure. However, such modification should be construed within the scope of the present disclosure. Accordingly, the drawings are showing only those specific details that are pertinent to understanding the embodiments of the present disclosure so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having benefit of the description herein.

[033] In the present disclosure, the term “exemplary” is used herein to mean “serving as an example, instance, or illustration.” Any embodiment or implementation of the present subject matter described herein as “exemplary” is not necessarily to be construed as preferred or advantageous over other embodiments.

[034] The terms “comprises”, “comprising”, or any other variations thereof used in the disclosure, are intended to cover non-exclusive inclusions, such that an

apparatus, device, assembly, mechanism, system, and method that comprises a list of components does not include only those components but may include other components not expressly listed or inherent to such apparatus, system, assembly, or device. In other words, one or more elements in a system proceeded by "comprises… a" does not, without more constraints, preclude the existence of other elements or additional elements in the system or apparatus or method.

[035] The terms like "at least one" and "one or more" may be used interchangeably or in combination throughout the description.

[036] While the present disclosure is illustrated in the context of a two-wheeled vehicle, however, the body frame, seating arrangement resulting from employing such body frame, and aspects and features thereof can be used with other type of vehicles as well. The terms "modular vehicle", "vehicle", "two-wheeled vehicle", "electric vehicle", "battery operated vehicle", "EV" and "motorcycle", "bike", "motorbike" have been interchangeably used throughout the description. The term "vehicle" comprises vehicles such as motorcycles, scooters, bicycles, mopeds, scooter type vehicle, and the like. Further, the term "vehicle" may also include vehicles such as three-wheeled vehicle, all-terrain vehicles (ATV) and the like, without limiting scope of the present disclosure.

[037] The terms "front/forward", "rear/rearward/back/backward", "up/upper/top", "down/lower/lower ward/downward, bottom", "left/leftward", "right/rightward" used therein represents the directions as seen from a vehicle driver sitting astride.

[038] Reference will now be made to the exemplary embodiments of the disclosure, as illustrated in the accompanying drawings. Wherever possible, same numerals will be used to refer to the same or like parts. Embodiments of the disclosure are described in the following paragraphs with reference to FIGS. 1 to 7. In FIGS. 1 to 7, the same element or elements which have same functions are indicated by the same reference signs.

[039] Embodiments of the present disclosure disclose a body frame for a two-wheeled vehicle. The body frame includes a head tube and a down frame. A first end of the down frame extends downward and rearward from the head tube. The body frame further includes a first seat support supported by at least one of the head tube and the down frame. The body frame further includes a main frame member extending rearward from the down frame. The body frame further includes a rear frame extending upward and rearward from main frame member. The body frame also includes a second seat support secured to the rear frame. The second seat support is separate and positioned away from the first seat support defining a space therebetween.

[040] In an embodiment, the term 'body frame' or 'frame' or 'chassis' or 'support structure' or 'base structure' or 'base frame' (used interchangeably) as used herein refers to a core structure/support structure of the two-wheeler, to which all other components/elements of the vehicle such as, but not limited to, prime mover such as engine or traction motor, steering mechanism, suspension system, fuel tank or battery, rider seat and pillion passenger seat, are attached either directly or indirectly. Although the body frame of the present disclosure is described in the context of a two-wheeled vehicle and in context of a motorcycle, such description is not intended to limit the disclosure to the particular forms disclosed, but on the contrary, the disclosure is to cover all modifications, equivalents, and alternative falling within the scope of the disclosure. Accordingly, it is to be understood by a person skilled in the art that the body frame of the present disclosure may be employed in other vehicle, device, apparatus, and machine, that has similar structural requirements and that which requires similar body frame and seating system characteristics.

[041] The disclosure is described in the following paragraphs with reference to Figures 1 to 6. In the figures, the same element or elements which have same functions are indicated by the same reference signs. It is to be noted that, the entire set up of the body frame including mounting or coupling arrangements used for

mounting/coupling of the elements/components to the body frame of the vehicles is not illustrated in the figures for the purpose of simplicity.

[042] Referring now to Figures 1 and 2, a two-wheeled vehicle (100) (also referred to in as the 'vehicle' hereinafter) in accordance with an embodiment of the present disclosure is illustrated. The vehicle (100) referred to herein, embodies an electric two-wheeler or battery-operated motorcycle. Figures 1 and 2 depict right-side views of the vehicle (100), when the vehicle (100) is viewed from a front direction, depicted by pointer A. The vehicle (100) includes one or more body parts, such as a body frame (1), a front fork (2) (also referred to as the fork hereinafter), a steering mechanism having a handlebar (3) (also referred to as the handlebar hereinafter), a down frame (4), a front wheel (5), a rider seat (6) and a pillion passenger seat (7) (shown in Figure 2), a swing arm (8), a rear wheel (9), and a drivetrain (10). The front wheel (5) and the rear wheel (9) may be rotatably coupled to the body frame (1). It may be noted that the vehicle (100), in addition to including above stated parts, includes other parts such as, seat rails/saddle for mounting the rider seat (6) and the pillion passenger seat (7), power unit such as but not limited to battery packs, a transmission system, braking system, suspension system, rear view mirrors and the like, without limiting the scope of the present disclosure.

[043] Referring now to Figures 3 and 4 illustrating perspective views of the vehicle (100). In the illustrative embodiment depicted in Figure 4, the rider seat (6) and the pillion passenger seat (7) are mounted on seat support structures of the vehicle (100). As depicted in Figures 1 to 4, the body frame (1) includes a head tube (11) and the down frame (4). A first end (12) of the down frame (4) extends downward and rearward from the head tube (11). The body frame (1) further includes a first seat support (13) supported by at least one of the head tube (11) and the down frame (4). The body frame (1) further includes a main frame member (16) extending rearward from the down frame (4). In the illustrative embodiment depicted in Figures 1 to 4, the first seat support (13) is supported by the down frame (4). However, in an embodiment, the first seat support (13) may be supported by

the head tube (11). That is, the first seat support (13) may be secured to the head tube (11).

[044] Referring again to Figures 1 and 2, the body frame (1) further includes a rear frame (14) extending upward and rearward from the main frame member (16). The body frame (1) may include a lower frame member (16) (also referred to as sub-frame) positioned between the down frame (4) and the rear frame (14). The lower frame member (16) may be coupled to the second end (15) of the down frame (4) and to the rear frame (14). The lower frame member (16), the down frame (4), and the rear frame (14) may be formed integrally. In an embodiment, the lower frame member (16) may be structured to accommodate one or more battery units that are configured to power drive wheels of the vehicle (100).

[045] Further, the body frame (1) includes a second seat support (17) secured to the rear frame (14). The second seat support (17) may be a saddle configured to facilitate mounting of the pillion passenger seat (7) to the rear frame (14). As depicted in the Figures 1 to 4, the second seat support (17) is separate and positioned away from the first seat support (13) defining a space (18) therebetween. In comparison with the prior art, and as depicted in the illustrative embodiments in Figures 1 and 4, a hip point of the rider has been moved as much forward as possible, to create the space (18).

[046] In an embodiment, the space (18) defined between the first seat support (13) and the second seat support (17) defines a legroom (19) (roughly outlined in Figure 2) for a pillion passenger seated on the pillion passenger seat (7). The legroom (19) is defined in front of the second seat support (17). As can be seen in the illustrative embodiment, the legroom (19) is defined above the lower frame member (16), in front of the second seat support (17) and rearward of the first seat support (13). The legroom (19) provides a gripping point/accommodation space for pillion passenger's feet and knees, whereby reducing influence of pillion passenger's movement on vehicle (100) dynamics.

[047] In an embodiment, the first seat support (13) may be supported at a distance from the head tube (11), such that a secondary space (not shown in Figures) is defined between the head tube (11) and the first seat support (13). In the embodiment, the first seat support (13) may be mounted on the lower frame member (16) and at a distance from the down frame (4). In the embodiment, the secondary space defines a legroom for the rider of the vehicle (100), where such legroom is defined in front of the first seat support (13), and rearward to the down frame (4).

[048] Referring again to Figure 3, at least one of the first seat support (13) and the second seat support (17) is pivotally supported on the body frame (1). The first seat support (13) may be pivotally connected to at least one of the head tube (11) and the down frame (4) of the body frame (1). Such pivotal connection between the first seat support (13) and the head tube (11) or the down frame (4), facilitates pivoting of the first seat support (13) relative to the head tube (11) or the down frame (4). The first seat support (13) may be pivoted relative to the head tube (11) or the down frame (4), for increasing legroom available for passengers during boarding and de-boarding of the vehicle (100). The rider seat (6) may be coupled to at least one the head tube (11) and the down frame (4) of the body frame (1). In an embodiment, the rider seat (6) may be pivotally coupled to the at least one the head tube (11) and the down frame (4) of the body frame (1).

[049] Referring now to Figures 2 and 4, the rider seat (6) may be secured to the first seat support (13) and the pillion passenger seat (7) may be secured to the second seat support (17). An elevation of at least one of the first seat support (13) and the second seat support (17) may be adjustable relative to the body frame (1). Further, elevation of at least one of the rider seat (6) and the pillion passenger seat (7) may be adjustable relative to the first seat support (13) and the second seat support (17), respectively.

[050] Referring now to top views of the vehicle (100) depicted in Figures 5 and 6, the handlebar (3) of the vehicle (100) may be positioned frontward relative to the head tube (11). The handlebar (3) extends in a forward direction relative to the head

tube (11). That is, the handlebar (3) may be elevated relative to the first end (12) of the down frame (4) and may be cantilevered in a forward direction, relative to the first end (12) of the down frame (4). The front fork (2) may be coupled to the head tube (11) and to the handlebar (3) of the vehicle (100). The front fork (2) may include a pair of telescopic forks pivotably coupled to the body frame (1) such that the pair of telescopic forks straddle the front wheel (5) of the vehicle (100). Such configuration of the handlebar (3) improves steering experience and ride comfort of the rider.

[051] Referring to Figure 2, at least a portion of a motor may be covered or enclosed by the second seat support (17). That is, at least a portion of the motor is positioned beneath the second seat support (17), in space outlined by reference numeral '20' in Figure 2, where such portion of the motor is covered or sheltered below the second seat support (17). In such embodiment, the pillion passenger seat (7) may be positioned substantially above the rear wheel (9) and elevated from the rear wheel (9) in the space (20). Alternatively, in conventional internal combustion engine powered vehicles, at least a portion of the engine is positioned beneath the second seat support (17) in the space (20), where such portion of the engine is covered or sheltered below the second seat support (17).

[052] Figures 7a, 7b and 7c illustrate perspective views of the vehicle (100) including a convertible roof (21), a support pillar (22) for supporting the convertible roof (21) and a windshield (23), in accordance with an embodiment of the present disclosure. It is to be noted that, although the vehicle (100) depicted in Figures 7a, 7b and 7c has conventional body frame with joint seating arrangement for passengers, the features described herein with reference to Figures 7a, 7b and 7c may be adapted to be implemented with the body frame (1) and the vehicle (100) of the present disclosure. The support pillar (22) extends upwardly from at least one of rear end and side portion of the body frame (1). The support pillar (22) may be coupled to at least one of the lower frame member (16) and the rear frame (14) of the body frame (1). In an embodiment, the support pillar (22) may be integrated

with the body frame (1). The support pillar (22) may be a cylindrical member extending between the lower frame member (16) and the convertible roof (21). The convertible roof (21) may be supported on the support pillar (22) as depicted in Figures 7b and 7c. The convertible roof (21) may be configured to be operated between an extended condition and a retracted condition in a lengthwise direction of the vehicle (100). The support pillar (22) may be configured to support the convertible roof in the extended condition. In the extended condition, the convertible roof may be configured to protect or provide a canopy to at least one of the rider and the pillion passenger, against exposure to weather, sunlight, and external pollution. In an embodiment, a separation screen may be positioned between the rider and the pillion passenger, where such separation screen may be supported by the support pillar (22) and the convertible roof (21). In an embodiment, the support pillar (22) may be configured to support a phone docking unit. In an embodiment, the support pillar (22) may include a grab handle for the pillion passenger. In an embodiment, convertible roof (21) may be inflatable. The convertible roof (21) may be inflated by an air compressor housed within the support pillar (22).

[053] Referring again to Figures 7a, 7b and 7c, the windshield (23) may be secured to the head tube (11) and may be configured to extend upwardly relative to the head tube (11). In an embodiment, the windshield (23) may be secured to the fork (2) and may be configured to extend upwardly relative to the fork (2). The windshield (23) may be configured aerodynamically for reducing drag, whereby improving fuel efficiency of the vehicle (100). The windshield (23) may be configured to protect the rider from exposure to weather, sunlight, and external pollution. In an embodiment, the windshield (23) may be configured as retrofittable element.

[054] In an embodiment, the body frame (1) and the vehicle (100) including the body frame (1) of the present disclosure overcomes drawbacks associated with existing seating arrangements of two-wheeled vehicles. The body frame (1) of the present disclosure is configured to provide legroom to the pillion passenger as well

as rider, whereby eliminating inconveniences associated with existing seating arrangements of two-wheeled vehicles. The body frame (1) and the vehicle (100) including the body frame (1) of the present disclosure facilitates maintaining physical distance between the pillion passenger and the rider. Also, the configuration of the body frame (1) enables adjustment of elevation of the rider seat (6) and the pillion passenger seat (7) independent of each other. Further, the legroom (19) defined between the first seat support (13) and the second seat support (17) may be used as storage space for goods, articles, groceries, and food items.

[055] In an embodiment, the second seat support (17) including the pillion passenger seat (7) may be configured as a convertible structure, where such second seat support (17) including the pillion passenger seat (7) may be converted to act as a saree guard, a backrest for pillion passenger and as a storage box. Such configuration of the body frame (1) and the vehicle (100) encourages adoption of two-wheelers for delivery of goods, articles, groceries, and food items.

[056] The various embodiments of the present disclosure have been described above with reference to the accompanying drawings. The present disclosure is not limited to the illustrated embodiments; rather, these embodiments are intended to fully and completely disclose the subject matter of the disclosure to those skilled in this art. In the drawings, like numbers refer to like elements throughout.

[057] Herein, the terms “attached”, “connected”, “interconnected”, “contacting”, “mounted”, “coupled” and the like can mean either direct or indirect attachment or contact between elements, unless stated otherwise.

[058] Well-known functions or constructions may not be described in detail for brevity and/or clarity. As used herein the expression “and/or” includes any and all combinations of one or more of the associated listed items.

[059] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the disclosure. As used

herein, the singular forms “a”, “an” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms “comprises”, “comprising”, “includes” and/or “including” when used in this specification, specify the presence of stated features, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, operations, elements, components, and/or groups thereof.

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

EQUIVALENTS

[061] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

[062] It will be understood by those within the art that, in general, terms used herein, and especially in the appended claims (e.g., bodies of the appended claims) are generally intended as “open” terms (e.g., the term “including” should be interpreted as “including but not limited to,” the term “having” should be interpreted as “having at least,” the term “includes” should be interpreted as “includes but is not limited to,” etc.). It will be further understood by those within the art that if a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation

no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases "at least one" and "one or more" to introduce claim recitations. However, the use of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles "a" or "an" limits any particular claim containing such introduced claim recitation to inventions containing only one such recitation, even when the same claim includes the introductory phrases "one or more" or "at least one" and indefinite articles such as "a" or "an" (e.g., "a" and/or "an" should typically be interpreted to mean "at least one" or "one or more"); the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation *is* explicitly recited, those skilled in the art will recognize that such recitation should typically be interpreted to mean *at least* the recited number (e.g., the bare recitation of "two recitations," without other modifiers, typically means *at least* two recitations, or *two or more* recitations). Furthermore, in those instances where a convention analogous to "at least one of A, B, and C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., "a system (100) having at least one of A, B, and C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). In those instances where a convention analogous to "at least one of A, B, or C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., "a system (100) having at least one of A, B, or C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). It will be further understood by those within the art that virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either of the terms, or both terms. For example, the phrase "A or B" will be understood to include the possibilities of "A" or "B" or "A and B."

[063] In addition, where features or aspects of the disclosure are described in terms of Markush groups, those skilled in the art will recognize that the disclosure is also thereby described in terms of any individual member or subgroup of members of the Markush group.

[064] While various aspects and embodiments have been disclosed herein, other aspects and embodiments will be apparent to those skilled in the art. The various aspects and embodiments disclosed herein are for purposes of illustration and are not intended to be limiting, with the true scope being indicated by the following claims.

We claim:

1. A body frame (1) for a two-wheeled vehicle (100), the body frame (1) comprising:

a head tube (11);

a down frame (4), a first end (12) of the down frame (4) extending downward and rearward from the head tube (11);

a first seat support (13) supported by at least one of the head tube (11) and the down frame (4);

a main frame member (16) extending rearward from the down frame (4);

a rear frame (14) extending upward and rearward from the main frame member (16); and

a second seat support (17) secured to the rear frame (14), the second seat support (17) being separate and positioned away from the first seat support (13) defining a space (18) therebetween.

2. The body frame (1) as claimed in claim 1, wherein the space (18) defined between the first seat support (13) and the second seat support (17) defines a legroom (19) for a pillion passenger seated on the second seat support (17).

3. The body frame (1) as claimed in claim 1, wherein the first seat support (13) is supported at a distance from the head tube (11) defining a secondary space between the head tube (11) and the first seat support (13), the secondary space defines a legroom for a rider.

4. The body frame (1) as claimed in claim 1, wherein at least one of the first seat support (13) and the second seat support (17) is pivotally supported on the body frame (1).

5. The body frame (1) as claimed in claim 1, wherein a handlebar (3) of the two-wheeled vehicle (100) is positioned frontward relative to the head tube (11).

6. The body frame (1) as claimed in claim 1, wherein at least one of a portion of an internal combustion engine and a portion of a motor is covered by the second seat support (17).

7. A two-wheeled vehicle (100), comprising:

a steering mechanism;

a power unit;

a transmission;

a body frame (1) supporting a front wheel (5) and a rear wheel (9), the body frame (1) comprising;

a head tube (11) supporting the steering mechanism;

a down frame (4), a first end (12) of the down frame (4) extending downward and rearward from the head tube (11);

a first seat support (13) supported by at least one of the head tube (11) and the down frame (4);

a main frame member (16) extending rearward from the down frame (4);

a rear frame (14) extending upward and rearward from the main frame member (16); and

a second seat support (17) secured to the rear frame (14), the second seat support (17) being separate and positioned away from the first seat support (13) defining a space (18) therebetween.

8. The two-wheeled vehicle (100) as claimed in claim 7, comprises a rider seat (6) secured to the first seat support (13) and a pillion passenger seat (7) secured to the second seat support (17).

9. The two-wheeled vehicle (100) as claimed in claim 8, wherein the rider seat (6) is coupled to at least one a head tube (11) and the down frame (4) of the body frame (1).

10. The two-wheeled vehicle (100) as claimed in claim 8, wherein an elevation of at least one of the first seat support (13) and the second seat support (17) is adjustable relative to the body frame (1).

11. The two-wheeled vehicle (100) as claimed in claim 8, wherein the pillion passenger seat (7) is positioned substantially above the rear wheel (9) and elevated from the rear wheel (9).

12. The two-wheeled vehicle (100) as claimed in claim 7, comprises a convertible roof (21) coupled to the body frame (1), the convertible roof (21) being configured to be operated between an extended condition and a retracted condition in a lengthwise direction of the vehicle (100).

13. The two-wheeled vehicle (100) as claimed in claim 7, comprises a support pillar (22) extending upwardly from at least one of rear end and side portion of the body frame (1), the support pillar (22) configured to support the convertible roof (21) in the extended condition.

14. The two-wheeled vehicle (100) as claimed in claim 7, wherein the steering mechanism comprises a handlebar (3), the handlebar (3) extending forwardly from the head tube (11).

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Title: “**A BODY FRAME FOR A TWO-WHEELED VEHICLE**”

ABSTRACT

The present disclosure discloses a body frame (1) for a two-wheeled vehicle (100). The body frame (1) includes a head tube (11) and a down frame (4). A first end (12) of the down frame (4) extends downward and rearward from the head tube (11). The body frame (1) further includes a first seat support (13) supported by at least one of the head tube (11) and the down frame (4). The body frame (1) further includes a rear frame (14) extending upward and rearward from the main frame member (16). The body frame (1) also includes a second seat support (17) secured to the rear frame (14). The second seat support (17) is separate and positioned away from the first seat support (13) defining a space (18) therebetween.

Figure 2 is representative figure.