

## FASCICULE DE BREVET D'INVENTION

21 Numéro de dépôt : 1201400413  
(PCT/JP13/056119)

22 Date de dépôt : 06/03/2013

30 Priorité (s) :  
JP n° 2012-051808 du 08/03/2012

24 Délivré le : 29/05/2015

45 Publié le : 04.03.2016

73 Titulaire (s) :

HONDA MOTOR CO., LTD.,  
1-1, Minami-Aoyama 2-chome, Minato-ku,  
TOKYO 1078556 (JP)

72 Inventeur (s) :

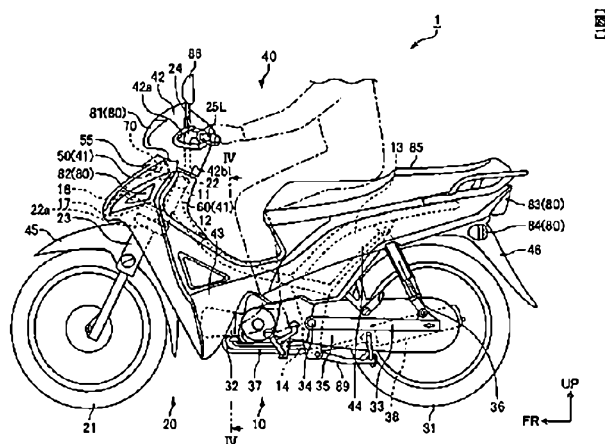
OTSUBO Mamoru (JP)  
HAYASHI Takazumi (JP)  
YOSHINO Hiroki (JP)

74 Mandataire : Cabinet ÉKÉMÉ LYSAGHT SARL,  
B.P. 6370, YAOUNDE (CM).

54 Titre : Structure for front part of saddle-type vehicle.

57 Abrégé :

The objective of the present invention is to provide a structure for the front part of a saddle-type vehicle with which a change in the steering feeling is prevented, and the interior structure is not easily viewable from a front-surface opening, when a front cover is equipped with a front-surface opening. This structure for the front part of a saddle-type vehicle is equipped with: a vehicle frame (10); a head pipe (11) provided on the part of the vehicle frame and supporting a front wheel (21) in a steerable manner; a handle (24) that is provided above the head pipe and steers the front wheel; a front cover (41) that covers the area to the sides of the head pipe; a handle cover (42) that is provided above the front cover and covers the entire handle, and is equipped with through-holes (42a, 42b) located on the handle gripping parts (25L, 25R) side and the head pipe side; and a front-surface opening (55) provided in the front-wall part of the front cover, in front of the head pipe. In addition, a wind-guiding wall (71), which has a slanted surface that increasing drops downward toward the rear, and which overlaps the front-surface opening when viewed from the front surface, is provided within the front cover, between the rear of the front-surface opening and the front of the head pipe.



[10]

**STRUCTURE FOR FRONT PART OF SADDLE-TYPE VEHICLE****TECHNICAL FIELD**

The present invention relates to a front part structure  
5 of a saddle-type vehicle having a front-surface opening in a  
front cover.

**BACKGROUND ART**

Conventionally, a saddle-type vehicle has been known that  
10 encloses a head pipe supporting the front wheel to be  
steerable with a front cover, and covers the handle above the  
front cover with a handle cover. In this case, the front  
cover includes, at an upper side, an upper opening for  
inserting a steering stem. The steering stem is accommodated  
15 in the head pipe. The handle is mounted to an upper end of  
the steering stem. The handle cover includes, at a lower  
side, a lower opening for inserting the steering stem.

For this type of saddle-type vehicle, a front part  
structure providing a front-surface opening in the center of a  
20 front-wall part of the front cover has been disclosed (for  
example, refer to Patent Document 1).

[Patent Document 1] Japanese Unexamined Patent  
Application, Publication No. 2011-063099

**DISCLOSURE OF THE INVENTION****25 Problems to be Solved by the Invention**

However, with the front part structure described in  
Patent Document 1, the traveling wind introduced from the  
front-surface opening of the front cover penetrates inside of  
the handle cover from the upper opening of the front cover  
30 through the lower opening of the handle cover.

For this reason, according to the shape of the wind-  
receiving face of the handle cover receiving the traveling  
wind that penetrates, the shape of the wind-receiving face  
will change along with the turning angle of the handle, and

the steering feel may no longer be uniform.

In addition, with the front part structure described in Patent Document 1, since the inside structure can be seen from the front-surface opening of the front cover, the appearance characteristics have been affected.

The present invention has been made taking the aforementioned issues into account, and has an object of providing a front part structure of a saddle-type vehicle that suppresses the steering feel from changing while providing a front-surface opening in a front cover, and for which the inside structure is not easily visible from the front-surface opening.

#### Means for Solving the Problems

A first aspect of the present invention is a front part structure of a saddle-type vehicle, including: a vehicle frame; a head pipe provided at a front part of the vehicle frame, and supporting a front wheel to be steerable; a handle that is provided above the head pipe, and steers the front wheel; a front cover that covers a lateral area of the head pipe; a handle cover that is provided above the front cover, includes a through hole at a side of a gripping part of the handle and a side of the head pipe, and covers an entirety of the handle; a front-surface opening that is provided at a front wall part of the front cover ahead of the head pipe; and an wind-guiding wall that is provided inside of the front cover to be behind the front-surface opening and ahead of the head pipe, has a slanted surface that increasingly drops downward toward the rear, and overlaps with the front-surface opening in a front view.

A second aspect of the present invention includes, in addition to the configuration as described in the first aspect, a steering shaft that connects the handle and the front wheel; and an upper wall provided above the wind-guiding wall, in which the front cover includes a front cowl that

covers forward of the head pipe, and a main frame cover that covers behind the head pipe, the front cowl is formed integrally in a front view, the main frame cover includes, at a top side, a top opening into which the steering shaft  
5 inserts, the top opening includes, at a forward side, a front aperture through which the steering shaft can be moved in and out of inside the top opening, and the upper wall is connected to an upper edge of the front cowl, and is disposed inside of the front aperture.

10 According to a third aspect of the present invention, in addition to the configuration described in the second aspect, the wind-guiding wall and the upper wall are formed in an annular shape connected to each other at ends in the vehicle width direction.

15 According to the fourth aspect, in addition to the configuration as described in any one of the first to third aspects, the wind-guiding wall includes a rib wall that projects from a bottom face towards an intermediate position in the vertical direction of the front-surface opening, and  
20 the rib wall extends substantially horizontally along a vehicle width direction, and includes, at a central part thereof, a rib wall opening.

According to a fifth aspect of the present invention, in addition to the configuration as described in any one of the  
25 first to fourth aspects, the wind-guiding wall is formed in a curved shape in which a center is a downward convex, and a back wall part of the front cover includes a first vent duct aside of the wind-guiding wall in a front view.

According to a sixth aspect of the present invention, in  
30 addition to the configuration as described in any one of the first to fifth aspects, a back wall part of the front cover includes a second vent duct lower than the wind-guiding wall.

According to a seventh aspect of the present invention, in addition to the configuration as described in any one of

the second to sixth aspects, the wind-guiding wall is fastened, at both ends in a vehicle width direction, to the front cowl, and is locked, at a front edge, to the front cowl.  
Effects of the Invention

5           According to the first aspect of the invention, inside of the front cover, a wind-guiding wall is equipped that is provided rearward of the front-surface opening and ahead of the head pipe, has a slanted surface that increasingly drops downward toward the rear, and overlaps the front-surface  
10 opening when viewed from front. For this reason, the wind-guiding wall suppresses traveling wind introduced from the front-surface opening from flowing upwards to the handle cover side, and guides downwards. It is thereby possible to reduce as much as possible the influence of traveling wind  
15 penetrating inside of the handle cover, and thus a change in the feeling of steering that can be sensed by the rider from the influence of traveling wind penetrating inside of the handle cover can be suppressed.

          In addition, the wind-guiding wall is arranged rearward  
20 of the front-surface opening so as to overlap the front-surface opening when viewed from front. It is thereby possible to suppress the exposure of the interior structure and enhance the appearance characteristics.

          According to the second aspect of the invention, the  
25 front cowl constituting a front-surface side of the front cover is formed integrally when viewed from front. For this reason, it is unnecessary to form a divided face at the front surface of the front cover. It is thereby possible to raise the aerodynamic effect from the front cover.

30           In addition, a weight reduction can be achieved by reducing the fastening parts of respective cover parts constituting the front cover.

          The main frame cover constituting a back-surface side of the front cover includes, at a top side, the top opening into

which the steering stem connecting the handle and front wheel inserts. The top opening includes, at a front side, the front aperture through which the steering stem can be moved in and out of inside the top opening. It is thereby made possible to  
5 attach/detach the main frame cover from the steering stem, even in a state of the handle being installed to the upper end of the steering stem, and thus the productivity and maintenance property improve.

The upper wall is equipped above the wind-guiding wall,  
10 where the upper wall is connected to an upper edge of the front cowl, and is arranged inside of the front aperture of the top opening of the main frame cover. For this reason, the upper wall covers the space of the front aperture. It is thereby possible to reduce the exposure of the interior  
15 structure around the top opening as much as possible, by avoiding risk of the space of the front aperture harming the appearance characteristics, by a small parts count like the upper wall.

It is structurally possible to achieve minimization of  
20 the size of the top opening through which the steering stem penetrates, while achieving both of the above-mentioned effects. It is thereby possible to further suppress the risk of traveling wind penetrating to the handle cover side.

According to the third aspect of the invention, the wind-  
25 guiding wall and upper wall are formed in an annular shape, connected to each other at ends in the vehicle width direction. It is thereby possible to achieve a weight reduction for the wind-guiding wall and upper wall, while maintaining the rigidity to withstand the wind pressure of the  
30 traveling wind.

According to the fourth aspect of the invention, the wind-guiding wall includes the rib wall projecting from a bottom face towards an intermediate position in the vertical direction of the front-surface opening, the rib wall including

the rib wall opening at a central part along the vehicle width direction. For this reason, it is possible to create a grill shape in the front-surface opening by way of the rib wall. In addition, even if the area of the wind-guiding wall  
5 overlapping with the front-surface opening is made smaller, it is possible to suppress exposure of the interior structure. Furthermore, the traveling wind introduced from the front-surface opening passing above the rib wall can also be guided downwards by the wind-guiding wall through the rib wall  
10 opening.

According to the fifth aspect of the invention, the wind-guiding wall is formed in a curved shape in which a center forms a downward convex, and the back wall part of the front cover includes the first vent duct aside of the wind-guiding  
15 wall when viewed from front. For this reason, the traveling wind introduced inside of the front cover is guided along the wind-guiding wall downwards thereof and laterally. The traveling wind guided to the side of the wind-guiding wall is discharged from the first vent duct of the front cover. It is  
20 thereby possible to even more effectively discharge traveling wind introduced into the front cover.

According to the sixth aspect of the invention, the back wall part of the front cover includes the second vent duct lower than the wind-guiding wall. For this reason, the  
25 traveling wind guided below the wind-guiding wall is discharged from the second vent duct of the front cover. It is thereby possible to even more effectively discharge traveling wind introduced into the front cover.

According to the seventh aspect of the invention, the  
30 wind-guiding wall has both ends in the vehicle width direction fastened to the front cowl, and a front edge locked to the front cowl. For this reason, the wind-guiding wall can be made to closely attach to the front cowl, and thus the guiding effect of traveling wind can be enhanced.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a left side view showing a motorcycle as a saddle-type vehicle equipped with a front part structure according to a first embodiment of the present invention;

FIG. 2 is a front view of the motorcycle shown in FIG. 1;

FIG. 3 is an enlarged front view of a main part of the motorcycle shown in FIG. 1, illustrated by omitting the front cowl while leaving a wind-guiding wall and an upper wall;

FIG. 4 is a cross-sectional rear view taken along the line IV-IV in FIG. 1;

FIG. 5 is a plan view of a main part showing a front cover of the motorcycle shown in FIG. 1;

FIG. 6 is a cross-sectional side view of a main part taken along the line VI-VI in FIG. 5, and is a drawing only showing a front cowl in a state removing the wind-guiding wall and upper wall;

FIG. 7 is a cross-sectional side view of a main part taken along the line VI-VI in FIG. 5, and is a drawing showing the front cowl and main frame cover in a state attaching the wind-guiding wall and upper wall;

FIG. 8 is a rear view of a main part showing the front cowl in a state removing the wind-guiding wall and upper wall;

FIG. 9 is a rear view of a main part showing the front cowl in a state attaching the wind-guiding wall and upper wall;

FIG. 10 is a perspective view viewing a main part of the motorcycle shown in FIG. 1 from the left front diagonally;

FIG. 11 is a perspective view illustrating by omitting the front cowl from FIG. 10 while leaving the wind-guiding wall and upper wall;

FIG. 12 is a front view of the wind-guiding wall and upper wall;

FIG. 13 is a bottom view of the wind-guiding wall and

upper wall;

FIG. 14 is a perspective view conceptually showing a second embodiment of the wind-guiding wall;

FIG. 15 is a perspective view conceptually showing a  
5 third embodiment of the wind-guiding wall;

FIG. 16 is a perspective view conceptually showing a fourth embodiment of the wind-guiding wall;

FIG. 17 is a perspective view conceptually showing a fifth embodiment of the wind-guiding wall; and

10 FIG. 18 is a perspective view conceptually showing a sixth embodiment of the wind-guiding wall.

#### EXPLANATION OF REFERENCE NUMERALS

	10 vehicle frame
15	11 head pipe
	21 front wheel
	22 steering stem (steering shaft)
	24 handle
	25L, 25R grip (gripping part)
20	41 front cover
	42 handle cover
	42a, 42b through hole
	50 front cowl
	55 front-surface opening
25	60 main frame cover
	61 top opening
	62 front aperture
	63 first vent duct
	64 second vent duct
30	71 wind-guiding wall
	72 rib wall
	73 rib wall opening
	74 upper wall

## PREFERRED MODE FOR CARRYING OUT THE INVENTION

Hereinafter, embodiments of the present invention will be explained while referencing the drawings.

## First Embodiment

5 First, the overall configuration of a motorcycle 1 as a saddle-type vehicle equipped with a front part structure according to a first embodiment of the present invention will be explained while referencing FIG. 1 and FIG. 2.

10 In the following explanation, unless otherwise noted, the respective directions of front, back, left, right, up and down are in accordance with directions viewed from the rider (driver) riding the motorcycle 1. In addition, in the drawings, the arrow FR indicates the front of the vehicle, the arrow LH indicates the left of the vehicle, the arrow RH  
15 indicates the right of the vehicle, and the arrow UP indicates above the vehicle.

As shown in FIG. 1, the motorcycle 1 of the present embodiment is mainly configured with a vehicle frame 10; a steering unit 20 supported to the vehicle frame 10 to be  
20 steerable and configured to include a front wheel 21; a rear wheel 31; an engine 32; a swing arm 33; a pivot shaft 34; a chain drive 35; a rear cushion 36; an exhaust pipe 37; a muffler 38; a chassis cover 40 covering the chassis; lamps 80; a seat 85 for rider seating; a back mirror 86; and a stand 89.

25 The vehicle frame 10 includes a head pipe 11, main frame 12, seat rail 13, pivot plate 14, stay 17 extending forwards from the head pipe 11, and support plate 18 fixed to an end of the stay 17.

30 The head pipe 11 is disposed at a front end of the vehicle frame 10. The main frame 12 is fixed to the head pipe 11 at the front end, and extends obliquely downwards to the rear from the head pipe 11. A pair of left and right seat rails 13 extends to the rear and upwards from the back part of the main frame 12.

The pivot plate 14 is fixed at an upper part thereof to a back part of the main frame 12. The pivot plate 14 supports the swing arm 33 (described later) to be able to swing about the pivot shaft 34 (described later).

5 The support plate 18 supports a front cover 41 (described later) of the chassis cover 40.

The steering unit 20 includes a front wheel 21, a steering stem 22 as a steering shaft, front forks 23, a handle 24, and left and right grips 25L and 25R as gripping parts.

10 The steering stem 22 is supported to be rotatable to the right and left relative to the head pipe 11. The front forks 23 are respectively supported to a bottom bridge 22a fixed to the lower-end of the steering stem 22, as well as pivotally supporting the front wheel 21. The handle 24 is coupled to an  
15 upper end of the steering stem 22 and extends to the left and right. The left grip 25L is mounted to a left-end side of the handle 24. The right grip 25R is mounted to a right-end side of the handle 24.

The engine 32 has a substantially horizontal cylinder  
20 axis, and is fixed to the vehicle frame 10.

The swing arm 33 is supported at a front end thereof to the pivot plate 14 to be able to swing about the pivot shaft 34. The rear wheel 31 is pivotally supported to the rear end of the swing arm 33.

25 The chain drive 35 connects the output shaft of the engine 32 and the rear wheel 31 with a chain.

The rear cushion 36 is disposed between a rear end of the swing arm 33 and an intermediate part of the seat rail 13. An exhaust pipe 37 is connected at a lower part of the engine 32,  
30 and this exhaust pipe 37 is extended rearwards to be connected to a muffler 38.

The chassis cover 40 includes the front cover 41, handle cover 42, pair of left and right side covers 43, pair of left and right rear side covers 44, front fender 45 and rear fender

46. The front cover 41 will be described later.

The handle cover 42 is provided above the front cover 41. The handle cover 42 covers the entirety of the handle 24 excluding the left and right grips 25L and 25R. The handle  
5 cover 42 includes penetrating holes 42a at the sides of the grips 25L and 25R of the handle 24, and includes a penetrating hole 42b at the side of the head pipe 11.

The pair of left and right side covers 43 are mounted at a front-end side to the front cover 41, and are mounted at the  
10 rear-end side to the pair of left and right rear side covers 44. The rear-end sides of the rear side covers 44 are mounted to the rear fender 46.

The front fender 45 is mounted to the bottom bridge 22a. The rear fender 46 is mounted to a lower side of the seat  
15 rails 13.

The lamps 80 include a head light 81, front signals 82, tail light 83, and rear signals 84.

The head light 81 is fixed to the handle cover 42, and is positioned at the front of the handle cover 42. The front  
20 signals 82 are fixed to the front cover 41, and are positioned at the front of the front cover 41. The tail light 83 is mounted at a rear part of the rear fender 46. The rear signals are mounted to the rear fender 46.

The seat is disposed above the seat rails 13. The  
25 rearview mirrors 86 are mounted to the left and right of the handle 24. The stand 89 is mounted at a lower-end part of the pivot plate 14 to be freely lower and raise.

Next, the front part structure of the motorcycle 1 will be explained while referencing FIGS. 3 to 13 in addition to  
30 FIGS. 1 and 2.

As shown in FIG. 1, the front cover 41 of the chassis cover 40 includes a front cowl 50 that covers ahead of the head pipe 11, and a main frame cover 60 that covers behind the head pipe 11.

As shown in FIG. 1 and FIG. 2, the front cowl 50 forming the front wall part of the front cover 41 configures a front face of the vehicle. The front cowl 50 is formed as an integrated object in the front view.

5 As shown in FIG. 2 and FIG. 5, the front cowl 50 includes three bolt through holes 51 for bolting to the support plate 18. By fastening bolts 18a to the support plate 18 through the respective bolt through holes 51, the front cowl 50 is fixed to the head pipe 11.

10 As shown in FIG. 6 and FIG. 8, the front cowl 50 includes, at a rear side (back side), mounting holes 52 for mounting the main frame cover 60.

As shown in FIG. 1 and FIG. 2, the front cowl 50 includes a front-surface opening 55 at a upper center, and includes a front lower wall face 54 ahead of the front-surface opening 55. As shown in FIG. 2, FIG. 3 and FIG. 8, the front-surface opening 55 is formed in a curved shape in which a center in the vehicle width direction forms a downward convex. The front-surface opening 55 includes an opening upper edge 55a and an opening lower edge 55b.

20 As shown in FIG. 6 and FIG. 7, the opening upper edge 55a of the front-surface opening 55 is provided more forwards than the opening lower edge 55b. The front lower wall face 54 increasingly slopes upwards towards the rear.

25 As shown in FIG. 6 to FIG. 9, the front cowl 50 includes a plurality of locking ribs 56 that insert into and lock a front edge of a wind-guiding wall 71 (described later) at a rear upper side of the front-surface opening 55 (at an upper side of the opening upper edge 55a). The front cowl 50 includes, at a rear upper side of itself, a plurality of locking ribs 57 that insert into and lock a front upper flange 76b (described later) of an upper wall 74 (described later). The front cowl 50 includes, at both left and right sides of the front-surface opening 55, mounting holes 58 for mounting a

wall member 70 (described later).

As shown in FIG. 1 and FIG. 4, the main frame cover 60 forming a back wall part of the front cover 41 and the pair of left and right side covers 43 cover by covering the inside of the vehicle at the rear side of the head pipe 11 and ahead of the seat 85.

The main frame cover 60 is mounted to the front cowl 50, by bolting to the mounting holes 52 of the front cowl 50. The side covers 43 are mounted to the front cowl 50.

As shown in FIG. 5, the main frame cover 60 includes, at a top side, a top opening 61 into which the steering stem 22 inserts. The top opening 61 includes, at a front side, a front aperture 62 through which the steering stem 22 can be moved in and out of inside the top opening 61.

As shown in FIG. 4, the main frame cover 60 includes, at right and left upper parts, first vent ducts 63, as well as including second vent ducts at the left and right lower than the first vent ducts 63.

As shown in FIG. 1, the front cover 41 includes, internally, the wall member 70.

As shown in FIG. 3, FIG. 5, and FIG. 10 to FIG. 13, the wall member 70 includes the wind-guiding wall 71 sloping downwards from a rear upper side of the front-surface opening 55 of the front cowl 50 towards the head pipe 11, and an upper wall 74 that extends rearwards from a position above the back of the wind-guiding wall 71 (i.e. upper edge of the front cowl 50) and is disposed inside the front aperture 62 of the main frame cover 60.

The wind-guiding wall 71 and upper wall 74 are connected to each other at vehicle width direction ends, and are formed integrally in an annular shape in a front view. At the center in the vehicle width direction of the wall member 70, a central rib 77 coupling the wind-guiding wall 71 and upper wall 74 is formed. At both ends in the vehicle width

direction of the wall member 70, bolt through holes 78 for fixing the front cowl 50 are formed.

The wall member 70 is fixed at a predetermined position of the front cowl 50 by passing the bolts 58a through the bolt through holes 78 and bolting to the mounting holes 58 of the front cowl 50, in a state causing the front edge of the wind-guiding wall 71 to lock to the plurality of locking ribs 56 of the front cowl 50, and causing a front-side upper flange 76b (described later) of the upper wall 74 to lock to the plurality of locking ribs 57 of the front cowl 50.

The wind-guiding wall 71 is provided behind the front-surface opening 55 of the front cowl 50 and ahead of the head pipe 11 inside of the front cover 41, and has a slanted surface that increasingly drops downwards towards the rear. Then, the wind-guiding wall 71 overlaps the front-surface opening 55 in a front view (refer to FIG. 3).

The wind-guiding wall 71 is formed in a curved shape having a center in the vehicle width direction forming a downward convex.

The wind-guiding wall 71 includes a ribbed wall (fin) 72 that projects from the front-side lower face forwards towards a vertically intermediate position of the front-surface opening 55. The rib wall 72 extends substantially horizontally in a curved shape having a center in the vehicle width direction forming a downward convex along the vehicle width direction, and includes a rib wall opening 73 at the center.

The upper wall 74 includes an upper wall part 75 that extends downwards from the front to rear, and a standing wall part 76 that extends upwards from a leading edge of the upper wall part 75.

The upper wall part 75 includes a step part 75a at both end sides in the vehicle width direction. The step parts 75a are formed by both ends in the vehicle width direction of the

upper wall part 75 being positioned lower with a step relative to the center.

The standing wall part 76 includes step parts 76a at both end sides in the vehicle width direction. The step parts 76a are formed by both ends in the vehicle width direction of the standing wall part 76 being positioned forward with a step relative to the center.

A forward upper flange 76b is formed at an upper edge of the standing wall part 76.

The step parts 75a of the upper wall part 75 and the step parts 76a of the standing wall part 76 function as fitting parts with a main frame cover 60 side upon the upper wall 74 being disposed inside of the front aperture 62 of the main frame cover 60.

Next, functions of the front part structure of the motorcycle 1 will be explained.

When making the motorcycle 1 travel, the traveling wind from the front-surface opening 55 of the front cowl 50 is introduced. The introduced traveling wind is guided rearwards and downwards by the wind-guiding wall 71 sloped downwards from the rear upper side of the front-surface opening 55 towards the head pipe 11; therefore, the amount of traveling wind penetrating into the handle cover 42 can be suppressed. In addition, at this time, the traveling wind is guided so as to divide to the left and right by the wind-guiding wall 71 of a curved shape in which a center in the vehicle width direction forms a downward convex. In this way, the traveling wind guided rearwards and downwards from the front-surface opening 55, and further so as to be divided to the left and right, is vented rearwards from the first vent ducts 63 of the main frame cover 60, and is vented rearwards also from the second vent ducts 64.

For this reason, among the traveling wind introduced from the front-surface opening 55, the amount of traveling wind

penetrating inside of the handle cover 42 through the top opening 61 of the main frame cover 60 upwards and through the through holes 42b of the handle cover 42 is further suppressed.

5           In addition, at the top opening 61 of the main frame cover 60, the upper wall part 75 of the upper wall 74 extending rearwards from the upper edge position of the front cowl 50 above the wind-guiding wall 71 is disposed in the front aperture 62 provided for moving the steering stem 22 in  
10 and out.

For this reason, the amount of traveling wind penetrating inside of the handle cover 42 can be further reduced compared to the case of the upper wall 74 not being arranged at the front aperture 62 provided to the top opening 61 of the main  
15 frame cover 60.

There are the following such effects according to the first embodiment.

(1) Inside of the front cover 41, a wind-guiding wall 71 is equipped that is provided rearward of the front-surface  
20 opening 55 and ahead of the head pipe 11, has a slanted surface that increasingly drops downward toward the rear, and overlaps the front-surface opening 55 when viewed from front. For this reason, the wind-guiding wall 71 suppresses traveling wind introduced from the front-surface opening 55 from flowing  
25 upwards to the handle cover 42 side, and guides downwards. It is thereby possible to reduce as much as possible the influence of traveling wind penetrating inside of the handle cover 42, and thus a change in the feeling of steering that can be sensed by the rider from the influence of traveling  
30 wind penetrating inside of the handle cover 42 can be suppressed.

In addition, the wind-guiding wall 71 is arranged rearward of the front-surface opening 55 so as to overlap the front-surface opening 55 when viewed from front. It is

thereby possible to suppress the exposure of the interior structure and enhance the appearance characteristics.

(2) The front cowl 50 constituting a front-surface side of the front cover 41 is formed integrally when viewed from front. For this reason, it is unnecessary to form a divided face at the front surface of the front cover 41. It is thereby possible to raise the aerodynamic effect from the front cover 41, and a weight reduction can be achieved by reducing the fastening parts of respective cover parts constituting the front cover 41.

(3) The main frame cover 60 constituting a back-surface side of the front cover 41 includes, at a top side, the top opening 61 into which the steering stem 22 connecting the handle 24 and front wheel 21 inserts. The top opening 61 includes, at a front side, the front aperture 62 through which the steering stem 22 can be moved in and out of inside the top opening 61. It is thereby made possible to attach/detach the main frame cover 60 from the steering stem 22, even in a state of the handle 24 being installed to the upper end of the steering stem 22, and thus the productivity and maintenance property improve.

(4) The upper wall 74 is equipped above the wind-guiding wall 71, where the upper wall 74 is connected to an upper edge of the front cowl 50, and is arranged inside of the front aperture 62 of the top opening 61 of the main frame cover 60. For this reason, the upper wall 74 covers the space of the front aperture 62. It is thereby possible to reduce the exposure of the interior structure around the top opening 61 as much as possible, by avoiding risk of the space of the front aperture 62 harming the appearance characteristics, by a small parts count like the upper wall 74.

(5) It is structurally possible to achieve minimization of the size of the top opening 61 through which the steering stem 22 inserts, while achieving both of the above-mentioned

effects (3) and (4). It is thereby possible to further suppress the risk of traveling wind penetrating to the handle cover 42 side, and thus the above-mentioned effect (1) can be further enhanced.

5 (6) The wind-guiding wall 71 and upper wall 74 are formed in an annular shape, connected to each other at ends in the vehicle width direction. It is thereby possible to achieve a weight reduction for the wind-guiding wall 71 and upper wall 74, while maintaining the rigidity to withstand the wind  
10 pressure of the traveling wind.

(7) The wind-guiding wall 71 includes the rib wall 72 projecting from a bottom face towards an intermediate position in the vertical direction of the front-surface opening 55, the rib wall 72 including the rib wall opening 73 at a central  
15 part along the vehicle width direction. For this reason, it is possible to create a grill shape in the front-surface opening 55 by way of the rib wall 72. In addition, even if the area of the wind-guiding wall 71 overlapping with the front-surface opening 55 is made smaller, it is possible to  
20 suppress exposure of the interior structure. Furthermore, the traveling wind introduced from the front-surface opening 55 passing above the rib wall 72 can also be guided downwards by the wind-guiding wall 71 through the rib wall opening 73.

(8) The wind-guiding wall 71 is formed in a curved shape  
25 in which a center forms a downward convex, and the back wall part of the front cover 41 includes the first vent duct 63 aside of the wind-guiding wall 71 when viewed from front. For this reason, the traveling wind introduced inside of the front cover 41 is guided along the wind-guiding wall 71 downwards  
30 thereof and laterally. The traveling wind guided to the side of the wind-guiding wall 71 is discharged from the first vent duct 63 of the front cover 41. It is thereby possible to even more effectively discharge traveling wind introduced into the front cover 41.

(9) The back wall part of the front cover 41 includes the second vent duct 64 lower than the wind-guiding wall 71. For this reason, the traveling wind guided below the wind-guiding wall 71 is discharged from the second vent duct 64 of the front cover 41. It is thereby possible to even more effectively discharge traveling wind introduced into the front cover 41.

(10) The wind-guiding wall 71 has both ends in the vehicle width direction fastened to the front cowl 50, and a front edge locked to the front cowl 50. For this reason, the wind-guiding wall 71 can be made to closely attach to the front cowl 50, and thus the guiding effect of traveling wind can be enhanced.

#### Second Embodiment

FIG. 14 is a perspective view conceptually showing a second embodiment of a wind-guiding wall 71A. In the present embodiment, a reference symbol arrived at by adding A to the reference symbol used in the first embodiment is attached and shown for portions similar to the first embodiment, and otherwise redundant explanations are omitted.

In the present embodiment, the wind-guiding wall 71A is formed in a flat plate shape. In this case, the traveling wind introduced from a front-surface opening 55A is guided along the wind-guiding wall 71A downwards thereof and laterally.

There is the same effect as the above-mentioned effect (1) according to the second embodiment.

#### Third Embodiment

FIG. 15 is a perspective view conceptually showing a third embodiment of a wind-guiding wall 71B. In the present embodiment, a reference symbol arrived at by adding B to the reference symbol used in the first embodiment is attached and shown for portions similar to the first embodiment, and otherwise redundant explanations are omitted.

In the present embodiment, the wind-guiding wall 71B has, at a rear side of a flat plate-shaped wind-guiding wall part 71Ba, a bent part 71Bb formed that is folded back along the vehicle width direction downwards and forwards. In this case, the traveling wind introduced from the front-surface opening 55B is guided along the wind-guiding wall part 71Ba downwards thereof and laterally, and is further guided along the bent part 71Bb downwards thereof and laterally.

There is the same effect as the above-mentioned effect (1) according to the third embodiment.

In addition, (11) due to equipping the bent part 71Bb, the appearance characteristics can be further enhanced by further suppressing exposure of the interior structure.

#### Fourth Embodiment

FIG. 16 is a perspective view conceptually showing a fourth embodiment of a wind-guiding wall 71C. In the present embodiment, a reference symbol arrived at by adding C to the reference symbol used in the first embodiment is attached and shown for portions similar to the first embodiment, and otherwise redundant explanations are omitted.

In the present embodiment, the wind-guiding wall 71C has, at a rear side of a curved plate-shaped wind-guiding wall part 71Ca having a downwardly curved part 71Cc at a center in the vehicle width direction, a bent part 71Cb formed that is folded back along the vehicle width direction forwards and downwards. In this case, the traveling wind introduced from the front-surface opening 55C is guided along the wind-guiding wall part 71Ca downwards thereof and laterally, and is further guided along the bent part 71Cb downwards thereof and laterally.

There are the same effects as the above-mentioned effects (1) and (11) according to the fourth embodiment.

Additionally, (12) since the wind-guiding wall part 71Ca has the downwardly curved part 71Cc at the center in the

vehicle width direction, the traveling wind introduced from the front-surface opening 55C is even more efficiently guided laterally along the wind-guiding wall part 71Ca.

#### Fifth Embodiment

5 FIG. 17 is a perspective view conceptually showing a fifth embodiment of a wind-guiding wall 71D. In the present embodiment, a reference symbol arrived at by adding D to the reference symbol used in the first embodiment is attached and shown for portions similar to the first embodiment, and  
10 otherwise redundant explanations are omitted.

In the present embodiment, the wind-guiding wall 71D has, at a rear side of a curved plate-shaped wind-guiding wall part 71Da having a plurality of curved parts 71Dc at predetermined intervals along the vehicle width direction, a bent part 71Db  
15 formed that is folded back along the vehicle width direction forwards and downwards. In this case, the traveling wind introduced from the front-surface opening 55D is guided along the wind-guiding wall part 71Da downwards thereof and laterally, and further guided along the bent part 71Db  
20 downwards thereof and laterally.

There are the same effects as the above-mentioned effects (1), (11) and (12) according to the fifth embodiment.

25 Additionally, (13) since the wind-guiding wall part 71Da has the plurality of curved parts 71Dc at predetermined intervals along the vehicle width direction, the strength and rigidity can be ensured even if reducing the weight of the wind-guiding wall 71D by thinning. In addition, in terms of design, there is a sense of high-class, and thus the appearance characteristics can be even more enhanced.

#### 30 Sixth Embodiment

FIG. 18 is a perspective view conceptually showing a sixth embodiment of a wind-guiding wall 71E. In the present embodiment, a reference symbol arrived at by adding E to the reference symbol used in the first embodiment is attached and

shown for portions similar to the first embodiment, and otherwise redundant explanations are omitted.

In the present embodiment, the wind-guiding wall 71E is formed in a flat plate shape, a rib wall 72E is formed at a bottom face of the wind-guiding wall 71E, and a rib wall opening 73E is formed in the rib wall 72E. In this case, the traveling wind introduced from the front-surface opening 55E between the wind-guiding wall 71E and the rib wall 72E is guided through the rib wall opening 73E along the wind-guiding wall 71E downwards thereof and laterally. In addition, the traveling wind introduced from the front-surface opening 55E below the rib wall 72E is guided along the wind-guiding wall 71E downwards thereof and laterally.

There are the same effects as the above-mentioned effects (1) and (7) according to the sixth embodiment.

#### Other Embodiments

It should be noted that the sixth embodiment shown in FIG. 17 is achieved by including the rib wall 72E and rib wall opening 73E at the bottom face of the flat plate-shaped wind-guiding wall 71E, similarly to the wind-guiding wall 71A of the second embodiment shown in FIG. 13.

However, it is not limited thereto and, for example, may include the rib wall 72B (not illustrated) and the rib wall opening 73B (not illustrated) at the bottom face of the wind-guiding wall 71B of the third embodiment shown in FIG. 14.

Similarly, it may include the rib wall 72C (not illustrated) and the rib wall opening 73C (not illustrated) at the bottom face of the wind-guiding wall 71C of the fourth embodiment shown in FIG. 15. In addition, it may include the rib wall 72D (not illustrated) and the rib wall opening 73D (not illustrated) at the bottom face of the wind-guiding wall 71D of the fifth embodiment shown in FIG. 16.

## CLAIMS

1. In a front part structure of a saddle-type vehicle, including:

5 a vehicle frame (10);

a head pipe (11) provided at a front part of the vehicle frame (10), and supporting a front wheel (21) to be steerable;

a handle (24) that is provided above the head pipe (11), and steers the front wheel (21);

10 a steering shaft (22) that connects the handle (24) and the front wheel (21);

a front cover (41) that covers a lateral area of the head pipe (11);

a handle cover (42) that is provided above the front cover (41), includes a through hole (42a, 42b) at a side of a gripping part (25L, 25R) of the handle (24) and a side of the head pipe (11), and covers an entirety of the handle (24);

a front-surface opening (55) that is provided at a front wall part of the front cover (41) ahead of the head pipe (11);

20 the front part structure of a saddle-type vehicle comprises:

an wind-guiding wall (71) that is provided inside of the front cover (41) to be behind the front-surface opening (55) and ahead of the head pipe (11), has a slanted surface that increasingly drops downward toward the rear, and overlaps with the front-surface opening (55) in a front view; and

25 an upper wall (74) provided above the wind-guiding wall (71),

wherein the front cover (41) includes a front cowl (50) that covers forward of the head pipe (11), and a main frame cover (60) that covers behind the head pipe (11),

30 wherein the front cowl (50) is formed integrally in a front view,

wherein the main frame cover (60) includes, at a top side, a top opening (61) into which the steering shaft (22)

inserts,

wherein the top opening (61) includes, at a forward side, a front aperture (62) through which the steering shaft (22) can be moved in and out of inside the top opening (61), and

5 wherein the upper wall (74) is connected to an upper edge of the front cowl (50), and is disposed inside of the front aperture (62).

2. The front part structure of a saddle-type vehicle  
10 according to claim 1, wherein the wind-guiding wall (71) and the upper wall (74) are formed in an annular shape connected to each other at ends in the vehicle width direction.

3. The front part structure of a saddle-type vehicle  
15 according to claim 1 or 2,

wherein the wind-guiding wall (71) includes a rib wall (72) that projects from a bottom face towards an intermediate position in the vertical direction of the front-surface opening (55), and

20 wherein the rib wall (72) extends substantially horizontally along a vehicle width direction, and includes, at a central part thereof, a rib wall opening (73).

4. The front part structure of a saddle-type vehicle  
25 according to any one of claims 1, 2 and 3,

wherein the wind-guiding wall (71) is formed in a curved shape in which a center is a downward convex, and

30 wherein a back wall part of the front cover (41) includes a first vent duct (63) aside of the wind-guiding wall (71) in a front view.

5. The front part structure of a saddle-type vehicle  
according to any one of claims 1, 2, 3 and 4,

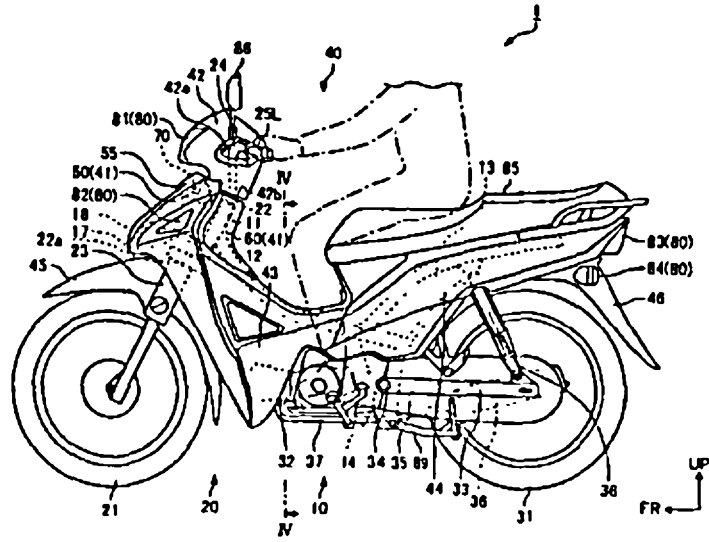
wherein a back wall part of the front cover (41) includes

a second vent duct (64) lower than the wind-guiding wall (71).

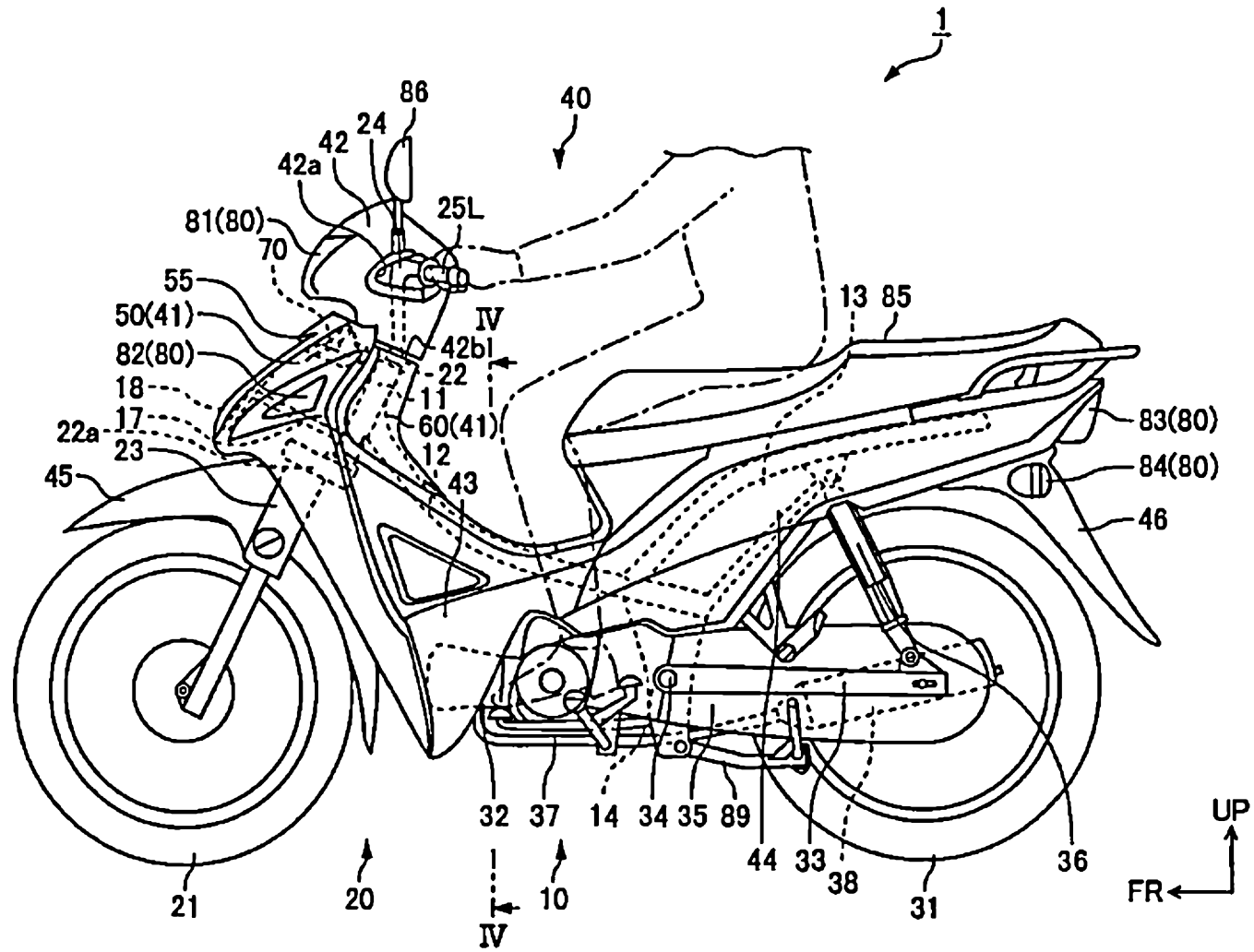
6. The front part structure of a saddle-type vehicle according to any one of claims 1, 2, 3, 4 and 5,

5 wherein the wind-guiding wall (71) is fastened, at both ends in a vehicle width direction, to the front cowl (50), and is locked, at a front edge, to the front cowl (50).

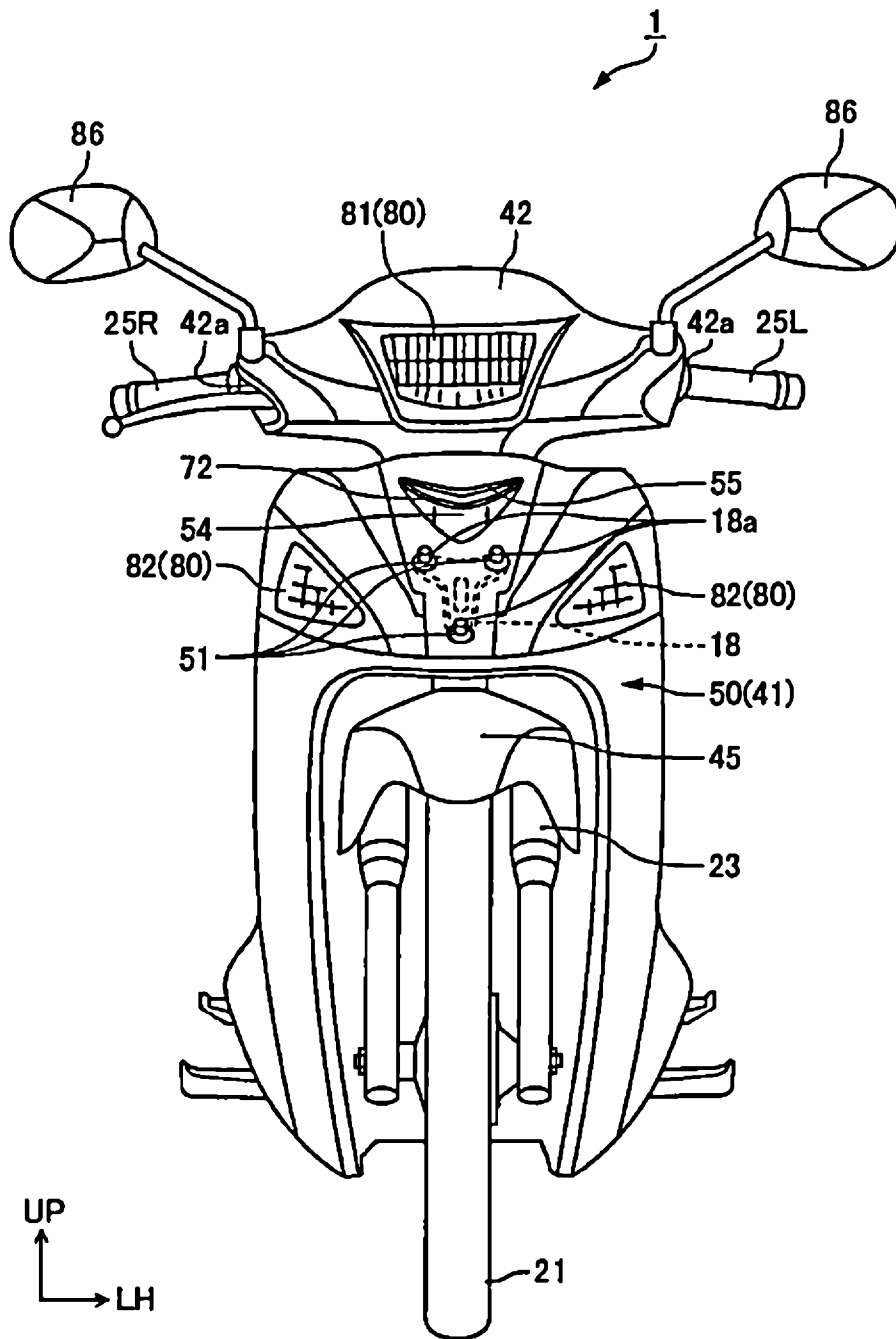
planche de l'abragé

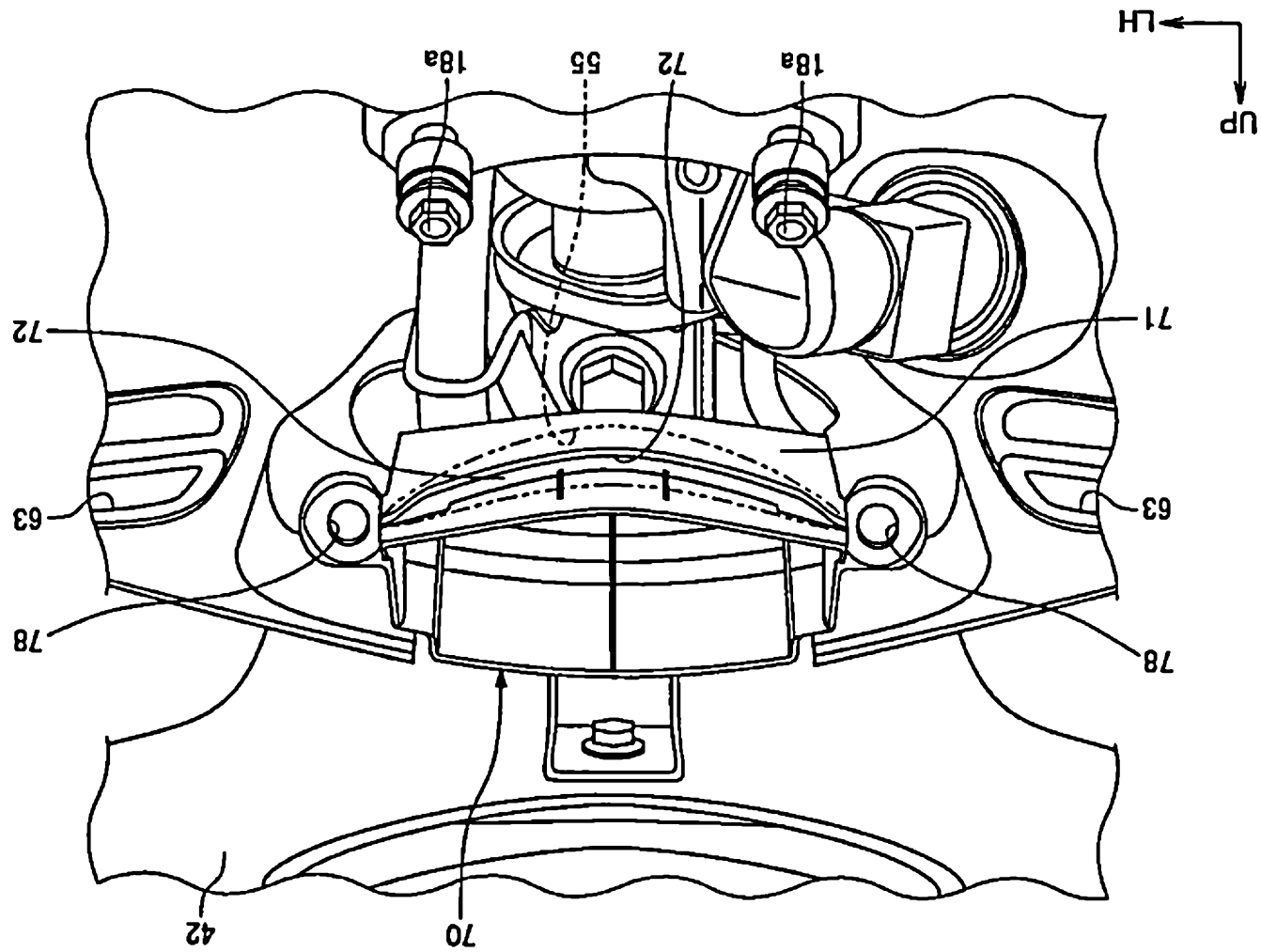


[1]



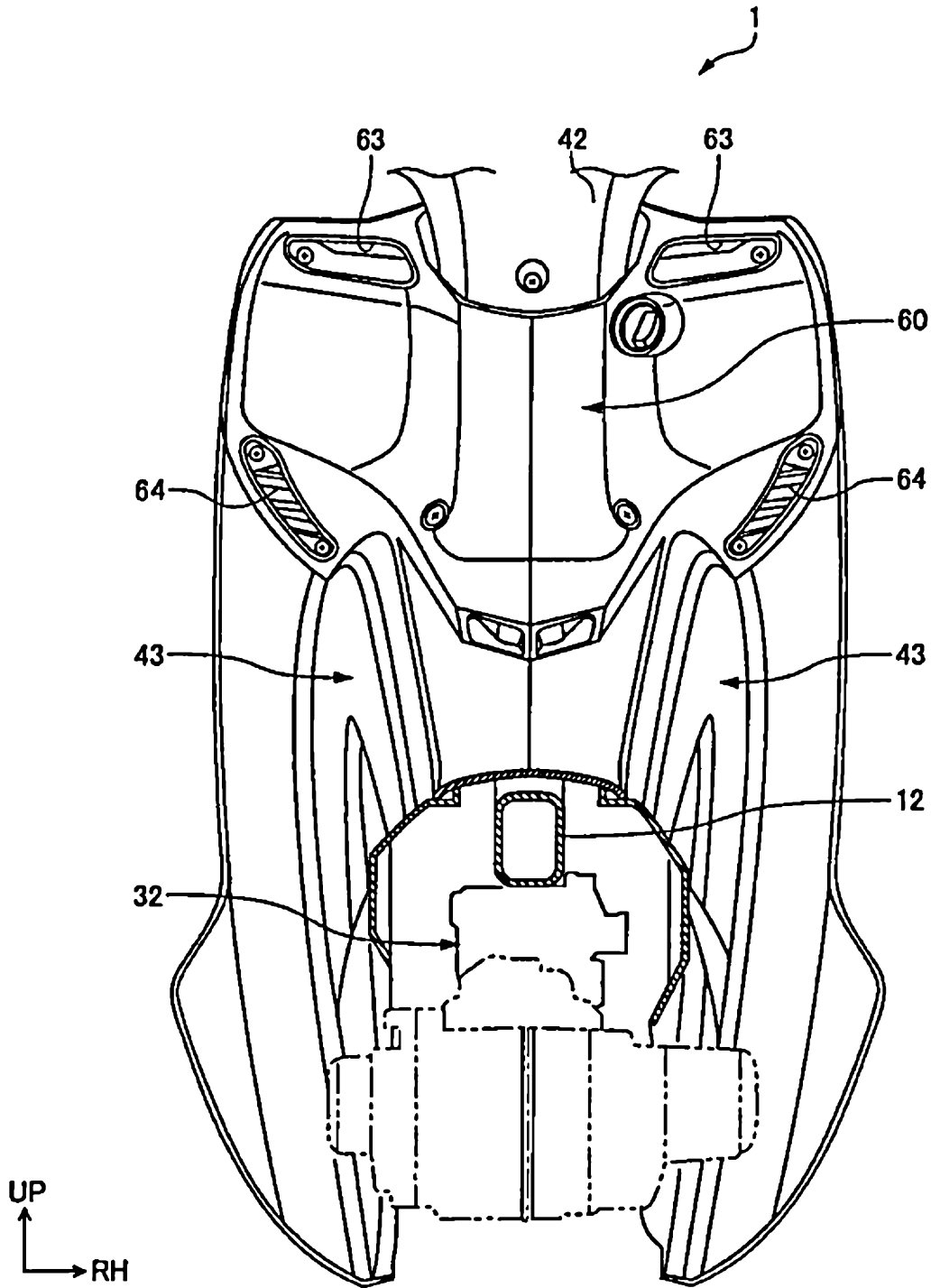
[圖2]



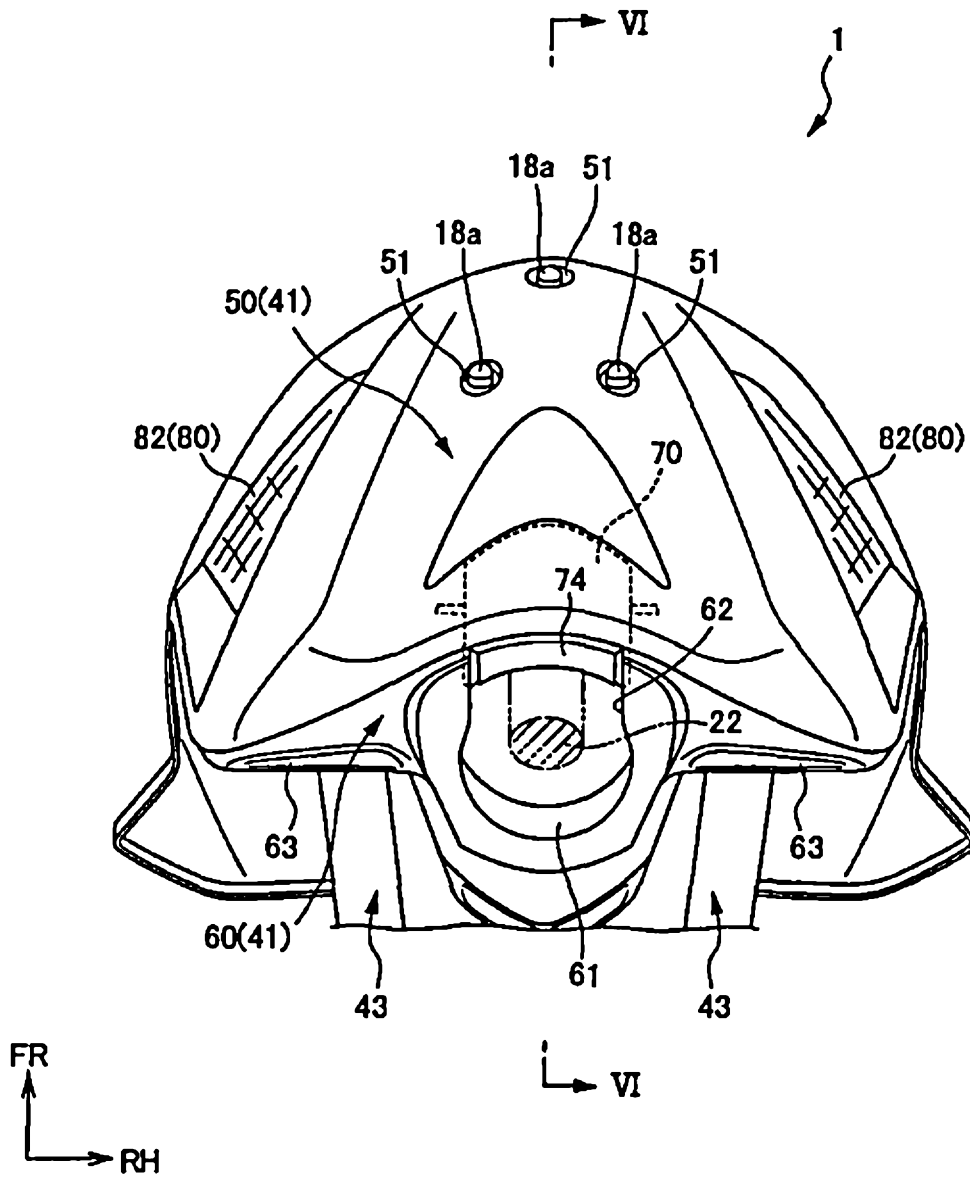


[圖3]

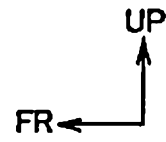
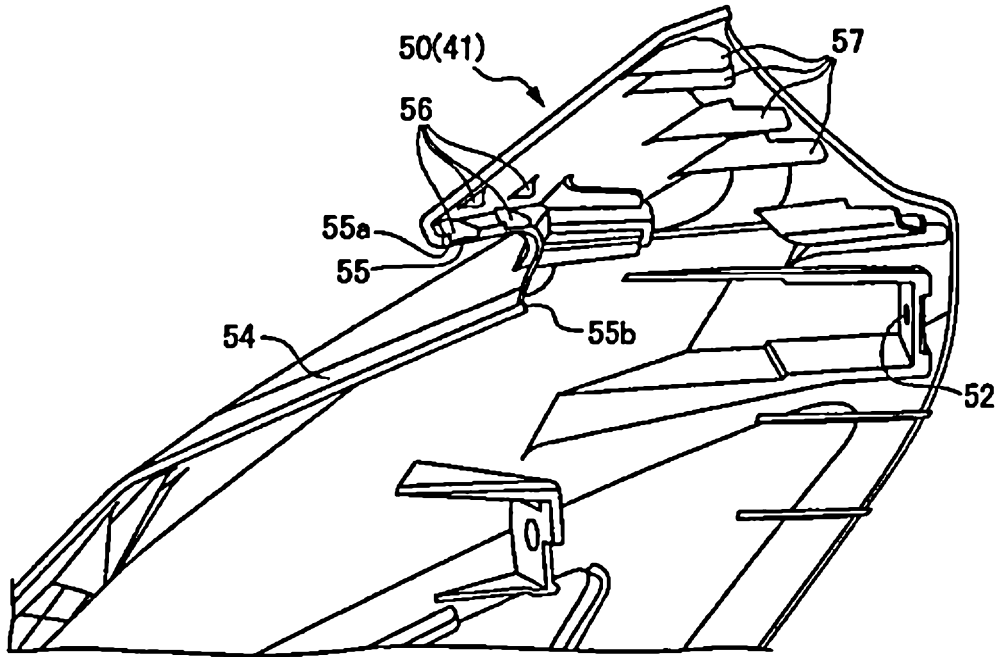
[圖4]



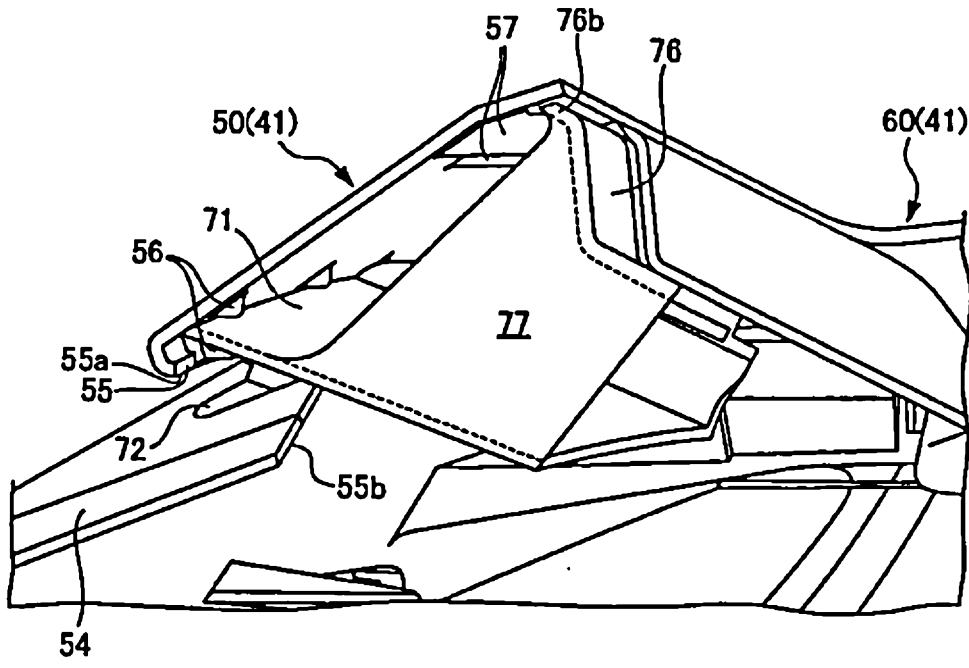
[圖5]

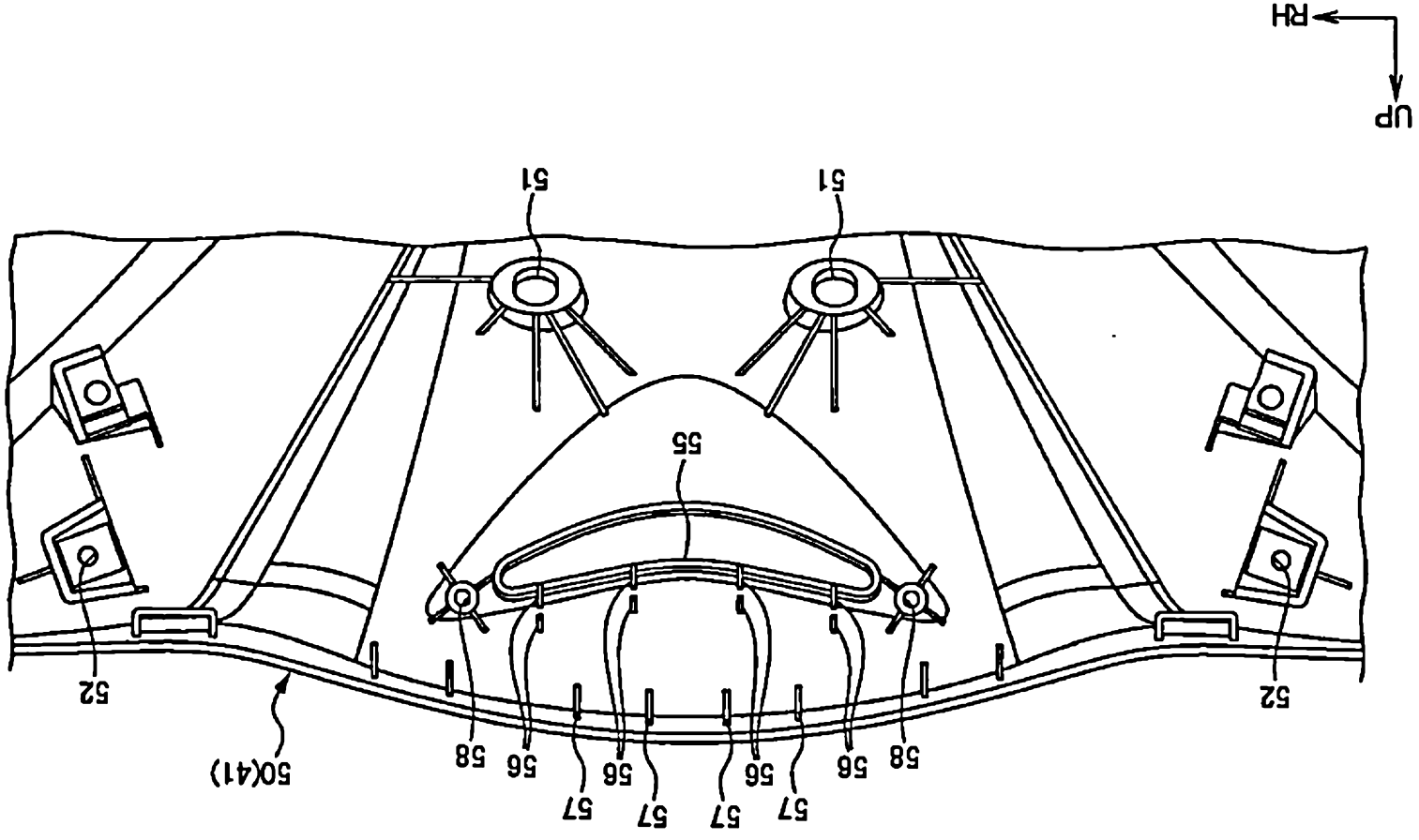


[圖6]



[図7]

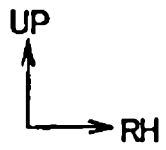
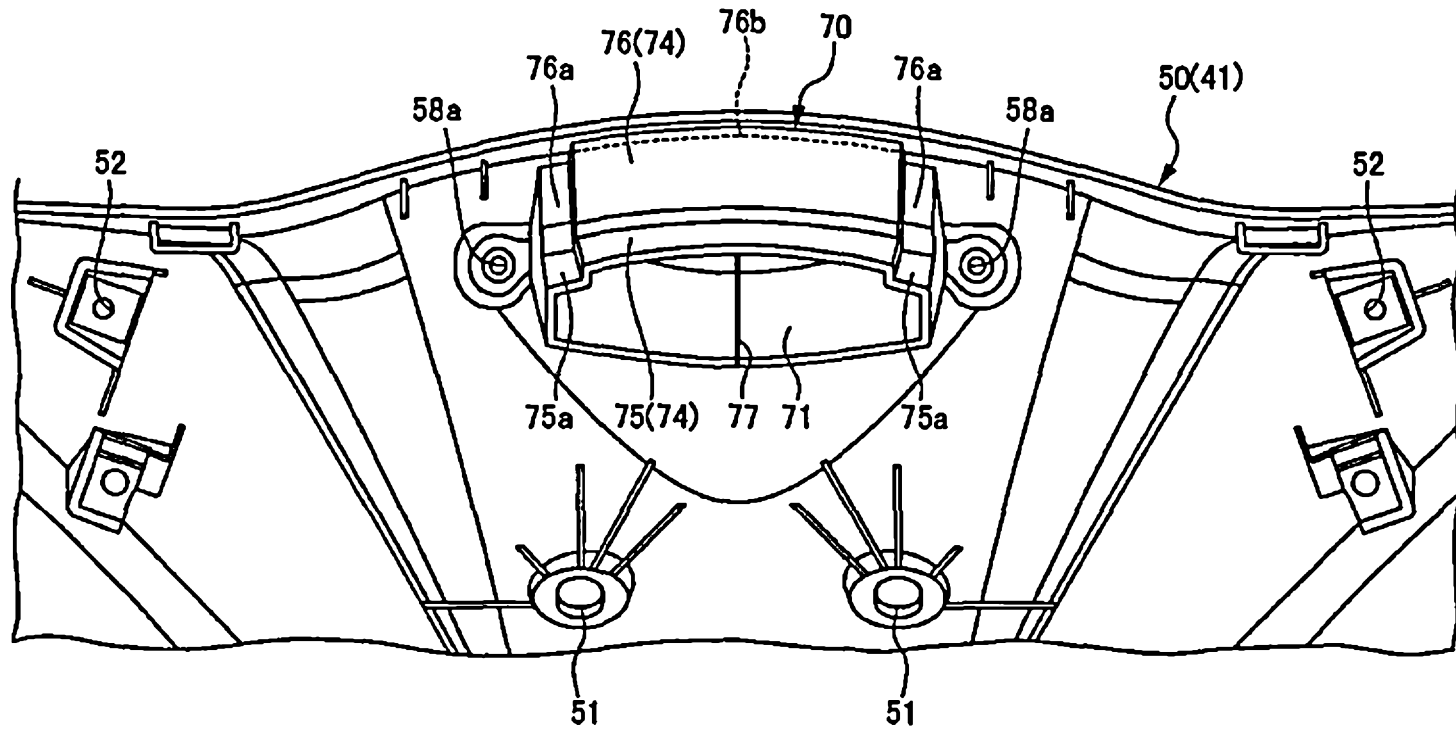




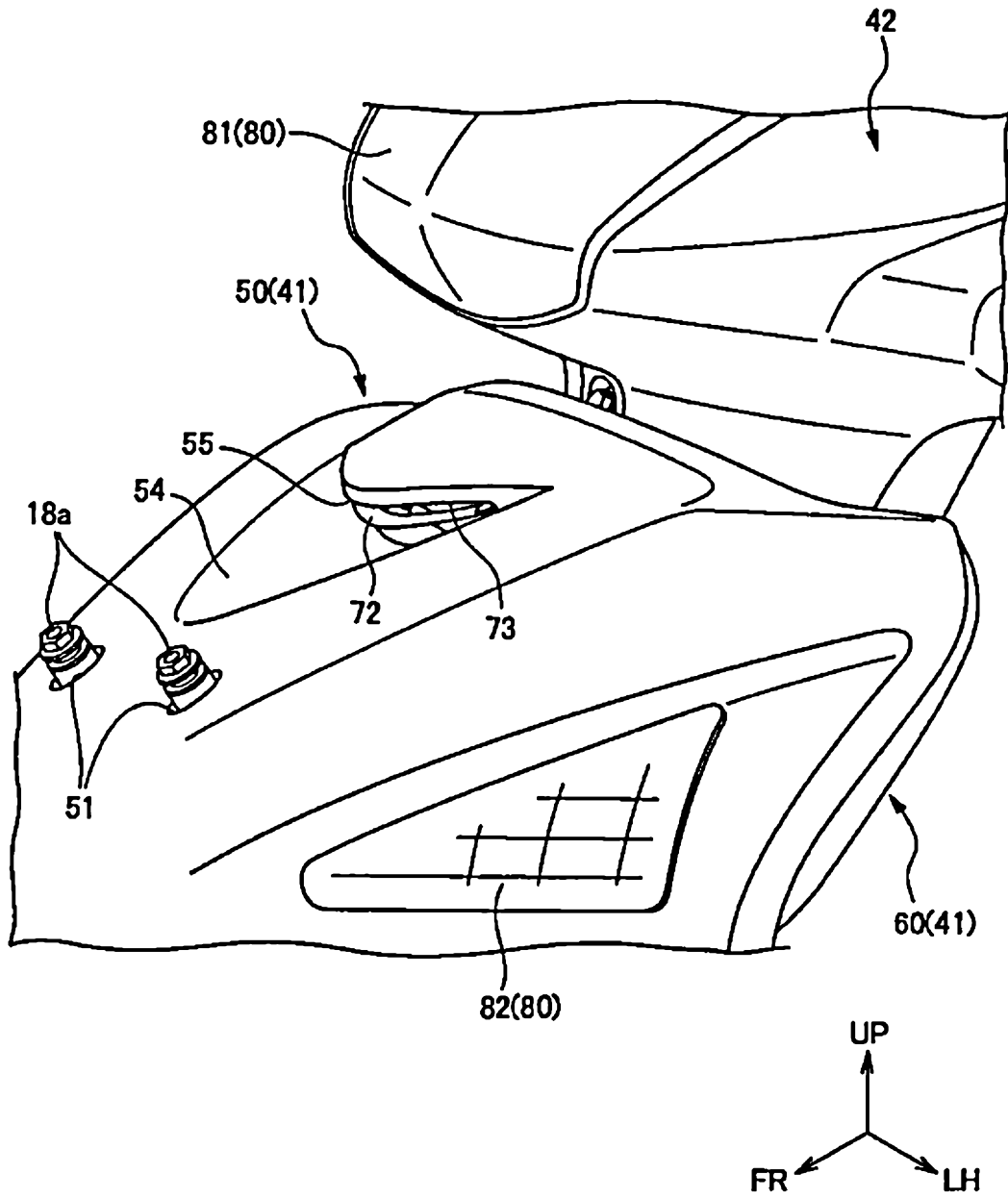
8/16

[88]

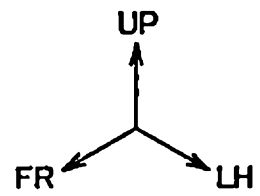
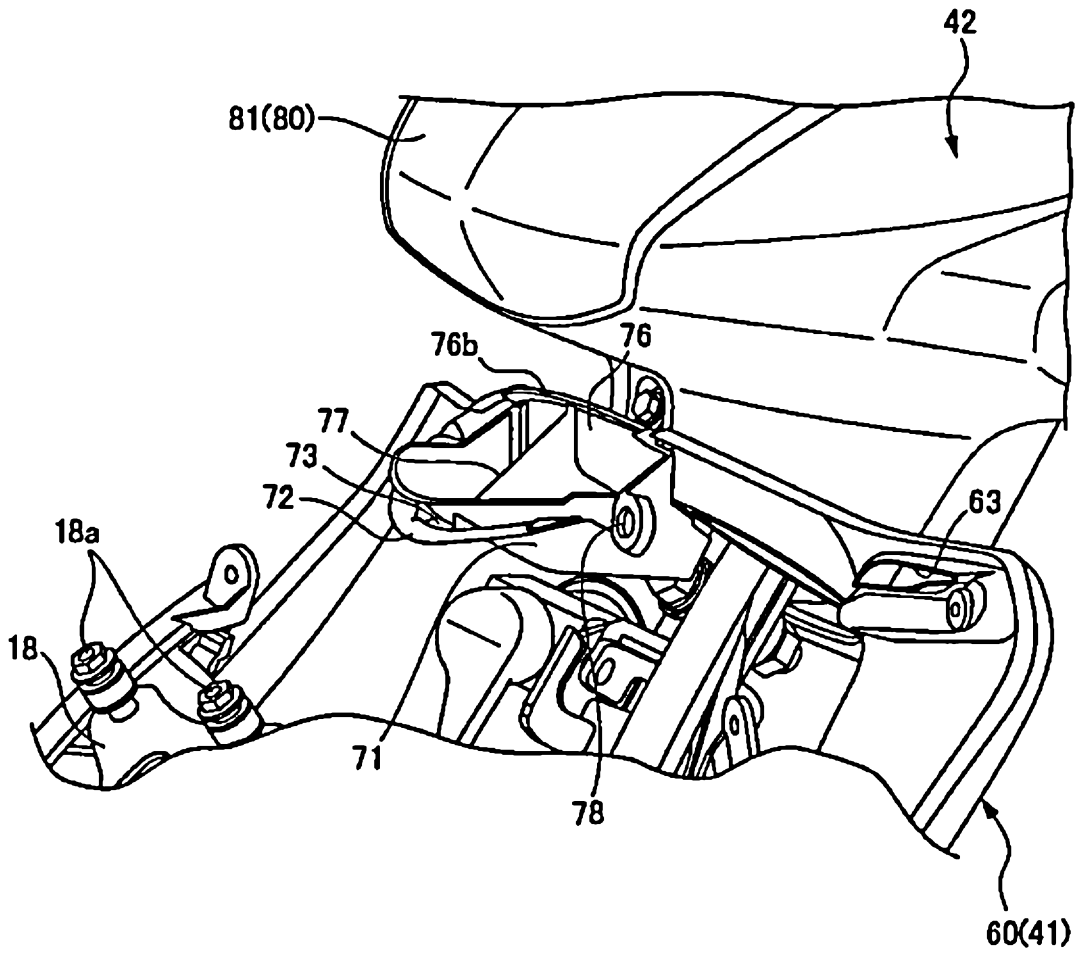
[圖9]



[圖10]

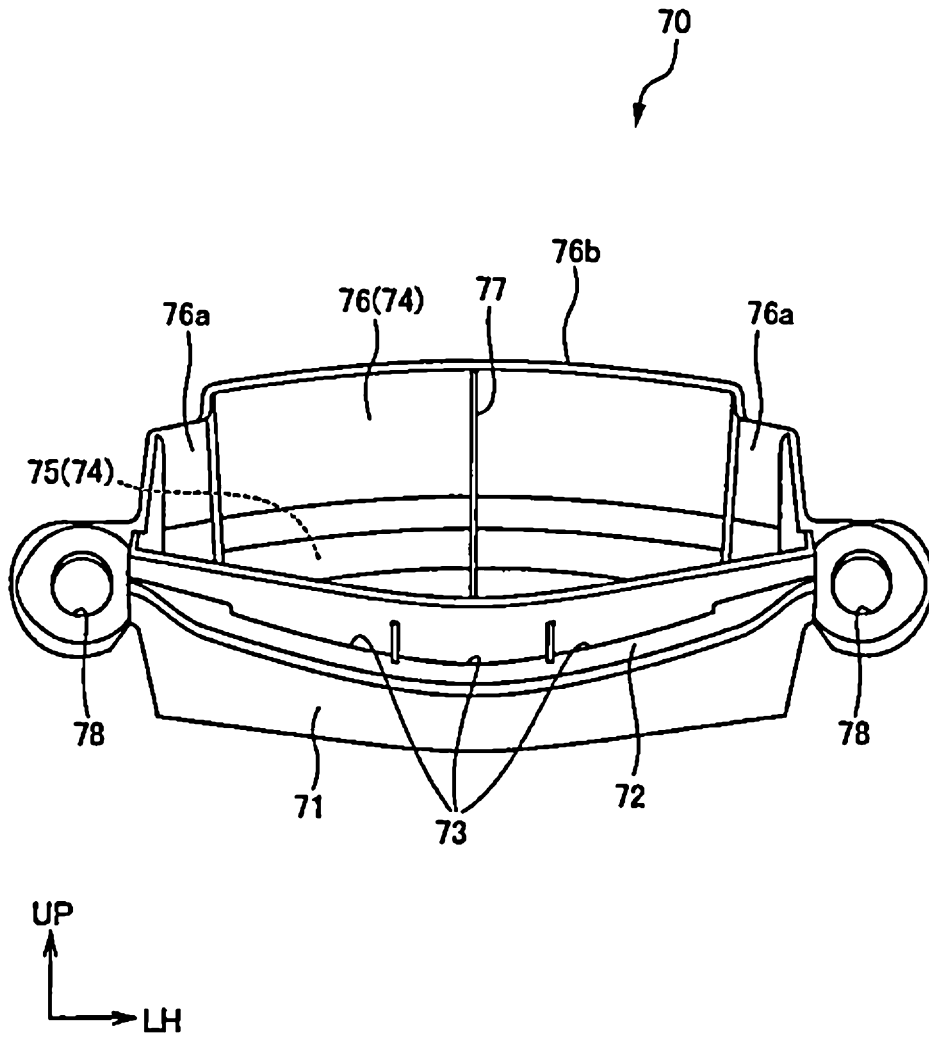


[11]

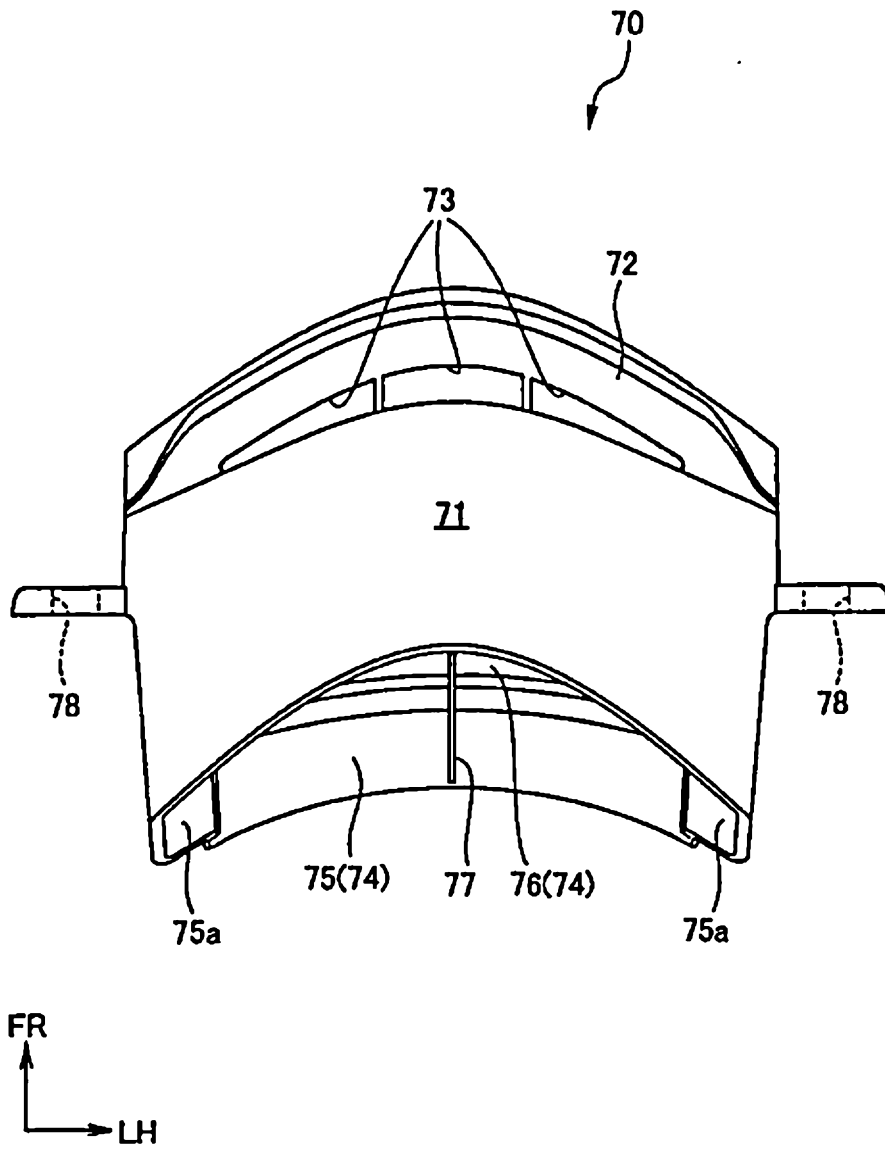


.....

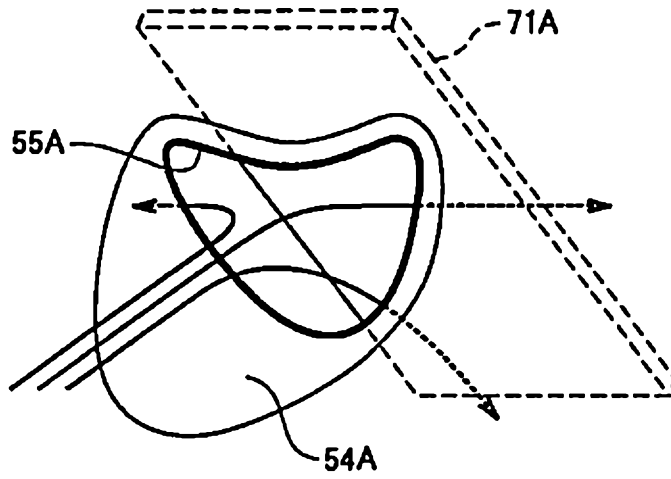
[圖12]



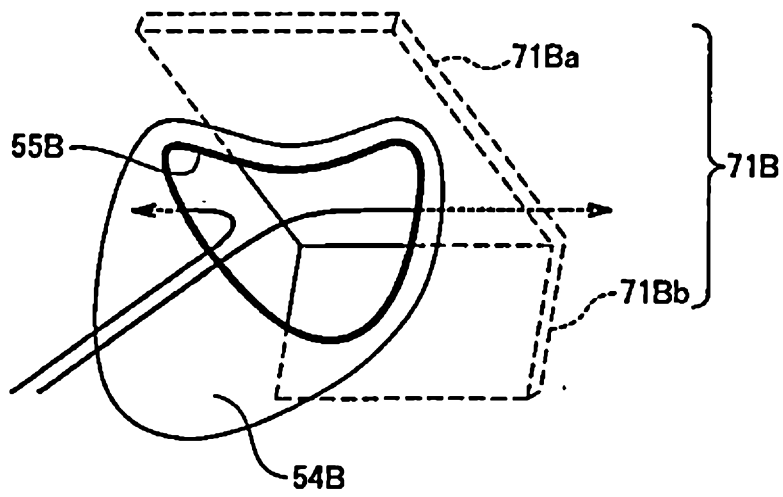
[圖13]



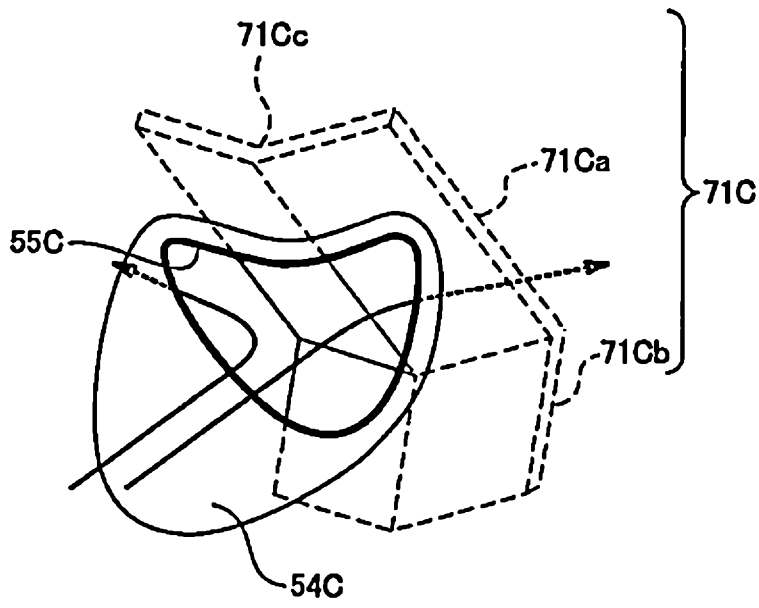
[圖14]



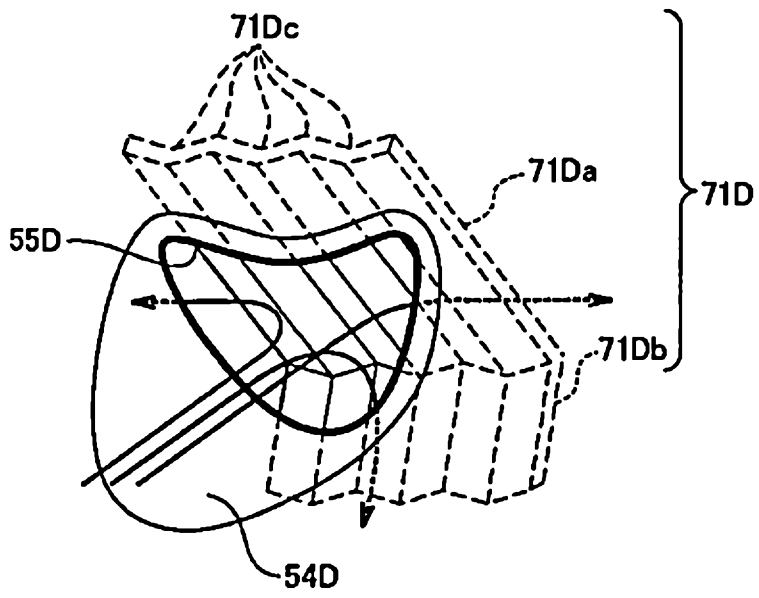
[圖15]



[圖16]



[圖17]



[圖18]

