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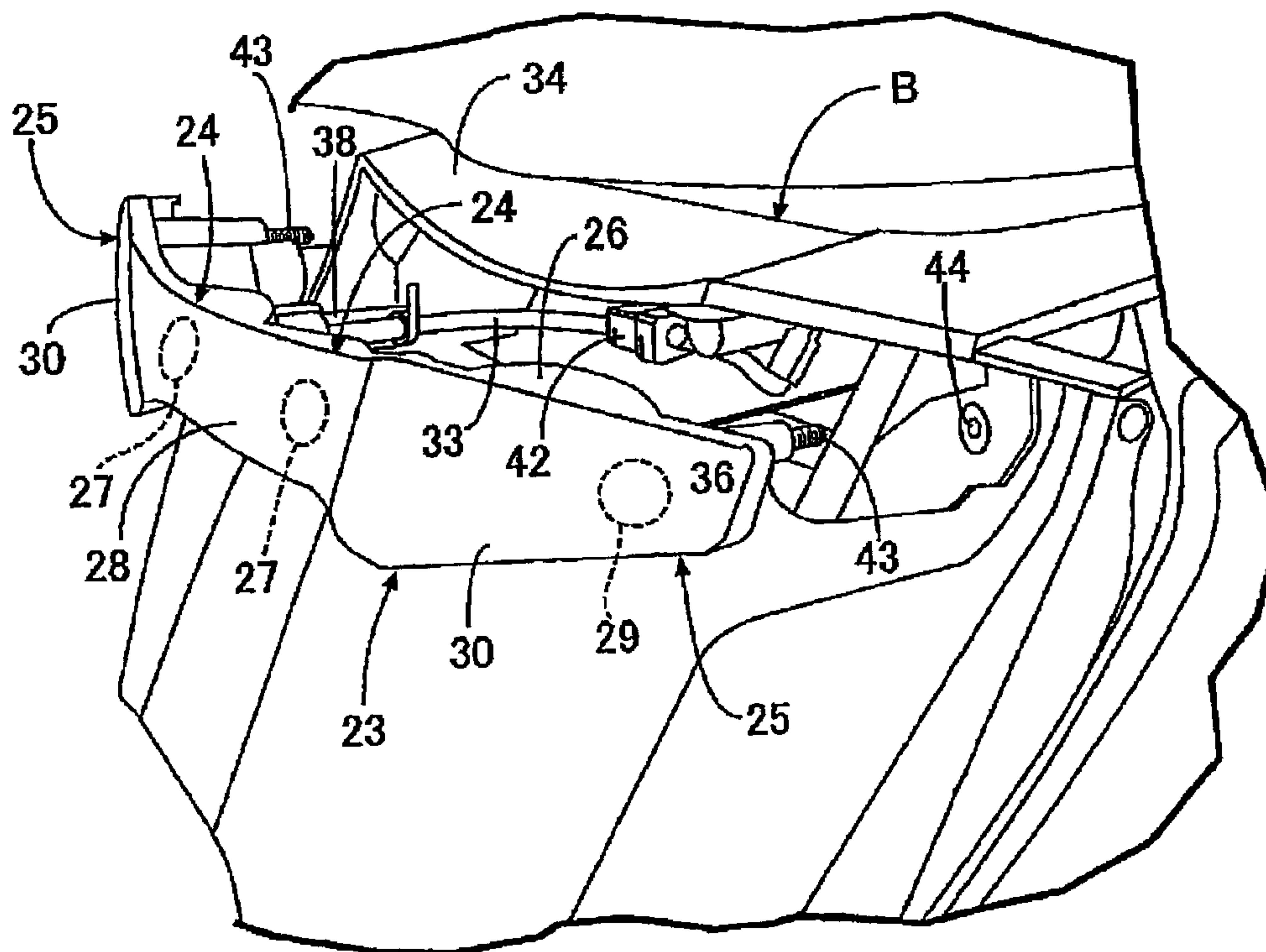
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(54) Titre : STRUCTURE DE CABLAGE DE FEU ARRIERE COMBINE

(54) Title: WIRING STRUCTURE OF REAR COMBINATION LIGHT



(57) Abrégé/Abstract:

A vehicle-body-side wire holding portion for holding an intermediate portion of a vehicle-body-side wire is mounted on a rear surface of a vehicle body, a stay which extends along the mounting direction for mounting a rear combination light on a rear portion of the vehicle body is mounted on the rear combination light, a light-side wire holding portion which holds an intermediate portion of the light-side wire on a distal end portion of the stay is mounted on the stay, and the light-side wire is connected to the vehicle-body-side wire by way of a wire coupler. This arrangement simplifies assembly and reduces or prevents pinching of the wires.



ABSTRACT OF THE DISCLOSURE

A vehicle-body-side wire holding portion for holding an intermediate portion of a vehicle-body-side wire is mounted on a rear surface of a vehicle body, a stay which extends along the mounting direction for mounting a rear combination light on a rear portion of the vehicle body is mounted on the rear combination light, a light-side wire holding portion which holds an intermediate portion of the light-side wire on a distal end portion of the stay is mounted on the stay, and the light-side wire is connected to the vehicle-body-side wire by way of a wire coupler. This arrangement simplifies assembly and reduces or prevents pinching of the wires.

WIRING STRUCTURE OF REAR COMBINATION LIGHT

FIELD OF THE INVENTION

5 The present invention relates to the wiring structure of a rear combination light where a light-side wire extending from the rear combination light which is mounted on a rear portion of a vehicle body while facing a rear surface of the vehicle body in an opposed manner is connected to a vehicle-body-side wire between the rear surface of the vehicle body and the rear combination light.

10

BACKGROUND OF THE INVENTION

With respect to a rear combination light of a miniaturized scooter where a tail lamp and a flasher lamp are formed into a unit by arranging the tail lamp and the flasher lamp in the inside of a common light body, as described in patent document 1, there
15 has been known a rear combination light where wires which are connected to the tail lamp and the flasher lamp are tied together to form a single wire in the inside of the light body, and one wire extending from the light body is connected to a vehicle-body-side wire using a connector arranged at a terminal thereof. Further, in a four-wheeled vehicle, as disclosed in patent document 2, a rear combination light on a left
20 side and a rear combination light on a right side are independently constituted, a vehicle-body-side wire and a light-side wire are connected with each other by a waiting connector and, at the same time, both rear combination lights are mounted on a rear portion of a vehicle body.

25 However, with respect to a large-sized motorcycle or the like which has the structure where it is difficult to carry out a wiring operation after mounting rear combination lights on a rear portion of a vehicle body, there may be a case where it is difficult for the motorcycle or the like to adopt the techniques disclosed in JP-A-11-321744 and JP-A-6-297998. When a room is given to the wire in advance to cope with such a
30 case, it is difficult to carry out a correction operation for making a wire take an

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accurate energizing route after the rear combination light is mounted on the rear portion of the vehicle body. Further, it is thought that mounting of the rear combination light in such a manner that the wire is not sandwiched between the vehicle body and the rear combination light in a state where the rear combination
5 light is mounted takes a time.

The present invention has been made under such circumstances, and it is an object of the present invention to provide the wiring structure of a rear combination light by which a rear combination light can be easily mounted on a vehicle body such that
10 sandwiching of a light-side wire does not occur while making an energizing route correction operation unnecessary.

SUMMARY OF THE INVENTION

The present invention is directed to the wiring structure of a rear combination light
15 where a light-side wire extending from the rear combination light which is mounted on a rear portion of a vehicle body while facing a rear surface of the vehicle body in an opposed manner is connected to a vehicle-body-side wire between the rear surface of the vehicle body and the rear combination light, wherein the first technical feature of the present invention lies in that a vehicle-body-side wire holding portion
20 for holding an intermediate portion of the vehicle-body-side wire is mounted on the rear surface of the vehicle body, a stay which extends along the mounting direction for mounting the rear combination light on the rear portion of the vehicle body is mounted on the rear combination light, a light-side wire holding portion which holds an intermediate portion of the light-side wire on a distal end portion of the
25 stay is mounted on the stay, and in a state where the rear combination light is mounted on the rear portion of the vehicle body, the light-side wire is connected to the vehicle-body-side wire by way of a wire coupler which is arranged between the rear surface of the vehicle body and a back surface of the rear combination light.

30 According to the present invention, the intermediate portion of the light-side wire is held at the distal end portion of the stay which extends along the mounting direction for mounting the rear combination light on the rear portion of the vehicle body and is mounted on the rear combination light. Accordingly, even when a room is given to the light-side wire to secure an operation space for carrying out a wire connection
35 operation before mounting the rear combination light on the rear portion of the vehicle body, an energizing route of the light-side wire is held at least from the rear combination light to the distal end of the stay, and no slackening of the light-side

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wire occurs and hence, the rear combination light can be mounted on the rear portion of the vehicle body in such a manner that the occurrence of sandwiching of the light-side wire can be prevented while making an energizing route correction operation unnecessary whereby man-hours of a mounting/dismounting operation of the rear combination light can be decreased thus contributing to the enhancement of operation efficiency.

A second aspect of the present invention, in addition to the above, lies in that the stay is mounted on the rear combination light at a position offset to one side from an imaginary straight line which extends in the longitudinal direction while passing the center of the rear combination light in the vehicle widthwise direction, and the vehicle-body-side wire holding portion is arranged at a position offset to the other side from the imaginary straight line in the vehicle widthwise direction in a state where the rear combination light is mounted on the rear portion of the vehicle body.

According to the second aspect of the present invention, the stay is offset to one side from the center of the rear combination light in the vehicle widthwise direction, and the vehicle-body-side wire holding portion is offset to the other side from the center of the rear combination light in the vehicle widthwise direction and hence, a distance between the stay and the vehicle-body-side wire holding portion can be set relatively large in a state where the rear combination light is mounted on the rear portion of the vehicle body whereby the connection and the release of the connection using the wire coupler can be performed easily.

A third aspect of the present invention, in addition to the above, lies in that a length of the stay is set such that, in a state where the rear combination light is mounted on the rear portion of the vehicle body, a distal end portion of the stay extends toward a front side of the vehicle body beyond the rear surface of the vehicle body on which the vehicle-body-side wire holding portion is mounted.

According to the third aspect of the present invention, in a state where the rear combination light is mounted on the rear portion of the vehicle body, the distal end portion of the stay where the intermediate portion of the light-side wire is held is positioned closer to the front side of the vehicle body than the rear surface of the vehicle body where the vehicle-body-side wire holding portion is mounted and hence, it is possible to further surely prevent the occurrence of sandwiching of the light-side wire.

5 A fourth aspect of the present invention, in addition to the above, lies in that a wire length of the light-side wire from the vehicle-body-side wire holding portion to the light-side wire holding portion at a distal end portion of the stay is set to a value which is obtained by adding a length of the stay to a length between the stay and the vehicle-body-side wire holding portion in a state where the rear combination light is mounted on the rear portion of the vehicle body.

10 According to the fourth aspect of the present invention, by setting the wire length of the light-side wire from the vehicle-body-side wire holding portion to the holding portion of the distal end portion of the stay to a value which is obtained by adding the length of the stay to the length between the stay and the vehicle-body-side wire holding portion in a state where the rear combination light is mounted on the rear portion of the vehicle body, it is possible to secure an operation space for carrying
15 out a connection operation and a connection releasing operation using the wire coupler between the rear surface of the vehicle body and the rear combination light at the time of mounting the rear combination light on the rear portion of the vehicle body and at the time of removing the rear combination light from the rear portion of the vehicle body.

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A fifth aspect of the present invention, in addition to the above, lies in that the rear combination light includes a pair of left and right tail lights, and a pair of left and right blinker lights which sandwiches the tail lights from both sides in the vehicle widthwise direction.

25

According to the fifth aspect of the present invention, it is possible to provide the wiring structure suitable for the left-and-right pair type rear combination light.

30 A sixth aspect of the present invention, in addition to the above, lies in that the vehicle body is a vehicle body of a motorcycle.

According to the sixth aspect of the present invention, it is possible to provide the wiring structure of the rear combination light suitable for a motorcycle.

35 A seventh aspect of the present invention, in addition to the above, lies in that the rear combination light is arranged below a trunk which is mounted on the vehicle body above a rear wheel of the motorcycle.

Further, according to the seventh aspect of the present invention, the rear combination light is arranged below the trunk which is arranged above the rear wheel of the motorcycle and hence, even in the motorcycle where the securing of an operation space is difficult, a wiring operation of the rear combination light can be carried out relatively easily whereby the man-hours for a mounting/dismounting operation of the rear combination light can be reduced.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention are shown in the drawings, wherein:

Fig. 1 is a side view of a motorcycle;

Fig. 2 is a view of the motorcycle as viewed in the direction indicated by an arrow 2 in Fig. 1;

Fig. 3 is a perspective view showing a state where a rear combination light is removed from a rear portion of a vehicle body as viewed from a rear side of the vehicle body;

Fig. 4 is a view showing the constitution taken along a line 4-4 in Fig. 2;

Fig. 5 is a perspective view showing a state where the rear combination light is removed from the rear portion of the vehicle body as viewed from a front side of the vehicle body; and

Fig. 6 is a cross-sectional view taken along a line 6-6 in Fig. 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A first clip 37 of an embodiment corresponds to the vehicle-side-wire holding portion of the present invention.

To explain an embodiment of the present invention in conjunction with attached drawings Fig. 1 to Fig. 6, firstly, in Fig. 1, a vehicle body frame F of a motorcycle which constitutes a vehicle includes: a head pipe 12 which steerably supports a front fork 11 which pivotally supports a front wheel WF; a main frame 13 which extends in the rearward and downward direction from the head pipe 12; a seat rail 14 which extends in the rearward and upward direction from a rear end upper portion of the main frame 13, and a back stay 15 which connects a rear end lower portion of the main frame 13 and an approximately rear portion of the seat rail 14.

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A steering handle 16 is connected to an upper portion of the front fork 11. Further, a front end portion of a swing arm 17 is supported on a rear end portion of the main frame 13 in a vertically swingable manner, and a rear wheel WR which constitutes a drive wheel is pivotally supported on a rear end portion of the swing arm 17.
5 Further, a rear cushion unit 18 is arranged between an upper portion of a rear end of the main frame 13 and the swing arm 17.

A power unit P which drives the rear wheel WR is arranged in a space below the main frame 13, and the power unit P is supported on the main frame 13 by way of a
10 plurality of hanger members which are not explicitly shown in the drawing.

A fuel tank 19 is supported on the main frame 13 above the power unit P, and a tandem-type rider's seat 20 which is arranged behind the fuel tank 19 is supported on the seat rail 14.
15

A portion of the power unit P and the vehicle body frame F are covered with a vehicle body cover C which constitutes a vehicle body B in combination with the vehicle body frame F, and a trunk 21 which is arranged behind the rider's seat 20 and above the rear wheel WR and a pair of side bags 22 which is arranged on left
20 and right sides of the rear wheel WR are supported on a rear portion of the vehicle body B.

As shown in Fig. 2 to Fig. 4, a rear combination light 23 is mounted on the rear portion of the vehicle body B in a state where the rear combination light 23 is
25 arranged below the trunk 21. The rear combination light 23 includes a pair of left and right tail lights 24, 24, and a pair of left and right blinker lights 25, 25 which sandwich these tail lights 24... from both sides in the vehicle widthwise direction.

A housing 26 of the rear combination light 23 is formed such that the housing 26
30 opens rearward and is elongated in the vehicle widthwise direction. The pair of left and right tail lights 24 is constituted of the housing 26, a pair of left and right tail-light bulbs 27, 27 which is housed in a longitudinally middle portion of the housing 26, and a tail-light lens 28 which covers a rear open end of the housing 26 in a state where the tail-light lens 28 is arranged behind the tail-light bulbs 27. Further, the
35 blinker lights 25 respectively include the housing 26, a blinker bulb 29 which is housed in a longitudinally end portion of the housing 26, and a blinker lens 30 which is arranged behind the blinker bulb 29.

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Individual wires 31 which are connected with both tail-light bulbs 27 and individual wires 32 which are individually connected with both tail-light bulbs 29 are tied together as a light-side wire 33, and extend toward a front side, that is, toward a
5 vehicle body B side.

To explain the constitution also in conjunction with Fig. 5 and Fig. 6, a rear cowl 34 which constitutes a portion of the vehicle body cover C is arranged between upper portions of the left and right side bags 22 by fixing such that the rear cowl 34
10 constitutes a portion of the vehicle body B, and the rear combination light 23 is mounted on a rear portion of the vehicle body B such that the rear combination light 23 faces a rear surface of the rear cowl 34, that is, a rear surface 35 of the vehicle body B in an opposed manner.

Pairs of mounting bolts 43, 43 are respectively fixed as stud bolts to rear portions of both left and right end sides of the housing 26 of the rear combination light 23 in a projecting manner toward the vehicle body B side. On the other hand, as shown in Fig. 3, insertion holes 44... which allow the respective mounting bolts 43... to pass
15 therethrough are formed in both left and right sides of the rear portion of the vehicle body B corresponding to the respective mounting bolts 43 individually. By fastening nuts not shown in the drawing to the mounting bolts 43 which are inserted into the insertion holes 44 by threaded engagement from a front side of the vehicle body, the rear combination light 23 can be mounted on the rear portion of the vehicle body B in a state where the rear combination light 23 faces the rear surface 35 of the vehicle
20 body B in an opposed manner.

The light-side wire 33 extending from the rear combination light 23 mounted on the rear portion of the vehicle body B while facing the rear surface 35 of the vehicle body B in an opposed manner is connected to a vehicle-body-side wire 36 between the
30 rear surface 35 of the vehicle body B and the rear combination light 23.

A first clip 37 which constitutes a vehicle-body-side wire holding portion for holding an intermediate portion of the vehicle-body-side wire 36 is mounted on the rear surface 35 of the vehicle body B, a stay 38 which extends along the mounting
35 direction for mounting the rear combination light 23 on the rear portion of the vehicle body B is mounted on the rear combination light 23, a light-side wire holding portion 41 which holds an intermediate portion of the light-side wire 33 on a distal

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end portion of the stay 38 is mounted on the stay 38, and the light-side wire holding portion 41 is constituted of second and third clips 39, 40 which are mounted on the stay 38 in a spaced-apart manner in the longitudinal direction of the stay 38.

- 5 In a state where the rear combination light 23 is mounted on the rear portion of the vehicle body B, the light-side wire 33 is connected to the vehicle-body-side wire 36 by way of a wire coupler 42 which is arranged between the rear surface 35 of the vehicle body B and a back surface of the rear combination light 23.
- 10 As shown in Fig. 4 and Fig. 5, the stay 38 is mounted on the rear combination light 23 at a position offset to one side (left side) from an imaginary straight line CL which extends in the longitudinal direction while passing the center of the rear combination light 23 in the vehicle widthwise direction, and the first clip 37 is arranged at a position offset to the other side (right side) from the straight line CL of
- 15 the rear combination light 23 in the vehicle-widthwise direction in a state where the rear combination light 23 is mounted on the rear portion of the vehicle body B.

- Further, as shown in Fig. 3, a length L1 of the stay 38 is set such that, in a state where the rear combination light 23 is mounted on the rear portion of the vehicle body B, a
- 20 distal end portion of the stay 38 extends toward a front side of the vehicle body beyond the rear surface 35 of the vehicle body B on which the first clip 37 is mounted. Further, a wire length of the light-side wire 33 from the first clip 37 to the holding portion at a distal end portion of the stay 38 is set to a value which is obtained by adding the length L1 of the stay 38 to a length L2 between the stay 38
- 25 and the first clip 37 in a state where the rear combination light 23 is mounted on the rear portion of the vehicle body B.

- Next, to explain the manner of operation of this embodiment, the light-side wire 33 extending from the rear combination light 23 which is mounted on the rear portion
- 30 of the vehicle body B while facing the rear surface 35 of the vehicle body B of the motorcycle in an opposed manner is connected to the vehicle-body-side wire 36 between the rear surface 35 of the vehicle body B and the rear combination light 23. Here, the stay 38 which extends along the mounting direction for mounting the rear combination light 23 on the rear portion of the vehicle body B is mounted on the rear
- 35 combination light 23, the light-side wire holding portion 41 which holds the intermediate portion of the light-side wire 33 on the distal end portion of the stay 38 is mounted on the stay 38, the first clip 37 for holding the intermediate portion of the

vehicle-body-side wire 36 is mounted on the rear surface 35 of the vehicle body B, and the light-side wire 33 is connected to the vehicle-body-side wire 36 by way of the wire coupler 42 which is arranged between the rear surface 35 of the vehicle body B and the back surface of the rear combination light 23 in a state where the rear
5 combination light 23 is mounted on the rear portion of the vehicle body B. Accordingly, even when a room is given to the light-side wire 33 to secure an operation space for carrying out a wire connection operation before mounting the rear combination light 23 on the rear portion of the vehicle body B, an energizing route of the light-side wire 33 is held at least from the rear combination light 23 to
10 the distal end of the stay 38. Further, no slackening of the light-side wire 33 occurs and hence, the rear combination light 23 can be mounted on the rear portion of the vehicle body B in such a manner that the occurrence of sandwiching of the light-side wire 33 can be prevented while making an energizing route correction operation unnecessary whereby man-hours of a mounting/dismounting operation of the rear
15 combination light 23 can be decreased thus contributing to the enhancement of operation efficiency.

Further, the stay 38 is mounted on the rear combination light 23 at a position offset to one side from the imaginary straight line CL which extends in the longitudinal
20 direction while passing the center of the rear combination light 23 in the vehicle widthwise direction, and the first clip 37 is arranged at a position offset to the other side from the imaginary straight line CL in the vehicle widthwise direction in a state where the rear combination light 23 is mounted on the rear portion of the vehicle body B. Accordingly, a distance between the stay 38 and the first clip 37 can be set
25 relatively large in a state where the rear combination light 23 is mounted on the rear portion of the vehicle body B and hence, the connection and the release of the connection using the wire coupler 42 can be performed easily.

Further, the length L1 of the stay 38 is set such that, in a state where the rear
30 combination light 23 is mounted on the rear portion of the vehicle body B, the distal end portion of the stay 38 extends toward the front side of the vehicle body beyond the rear surface 35 of the vehicle body B on which the first clip 37 is mounted and hence, in a state where the rear combination light 23 is mounted on the rear portion of the vehicle body B, the distal end portion of the stay 38 where the intermediate
35 portion of the light-side wire 33 is held is positioned closer to the front side of the vehicle body than the first clip 37 whereby it is possible to further surely prevent the occurrence of sandwiching of the light-side wire 33.

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Further, a wire length of the light-side wire 33 from the first clip 37 to the holding portion at the distal end portion of the stay 38 is set to a value which is obtained by adding the length L1 of the stay 38 to the length L2 between the stay 38 and the first clip 37 in a state where the rear combination light 23 is mounted on the rear portion of the vehicle body B. Accordingly, it is possible to secure an operation space for carrying out the connection operation and the connection releasing operation using the wire coupler 41 between the rear surface 35 of the vehicle body B and the rear combination light 23 at the time of mounting the rear combination light 23 on the rear portion of the vehicle body B and at the time of removing the rear combination light 23 from the rear portion of the vehicle body B.

Further, the rear combination light 23 which includes the pair of left and right tail lights 24... and the pair of left and right blinker lights 25... which sandwiches the tail lights 24... from both sides in the vehicle widthwise direction is mounted on the rear portion of the vehicle body B of the motorcycle and hence, it is possible to provide the wiring structure suitable for the left-and-right pair type rear combination light 23 for the motorcycle.

Further, the rear combination light 23 is arranged below the trunk 21 which is arranged above the rear wheel WR of the motorcycle and hence, even in the motorcycle where the securing of an operation space is difficult, the wiring operation of the rear combination light 23 can be carried out relatively easily whereby the man-hours for a mounting/dismounting operation of the rear combination light 23 can be reduced.

Although various preferred embodiments of the present invention have been described herein in detail, it will be appreciated by those skilled in the art, that variations may be made thereto without departing from the claimed invention.

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

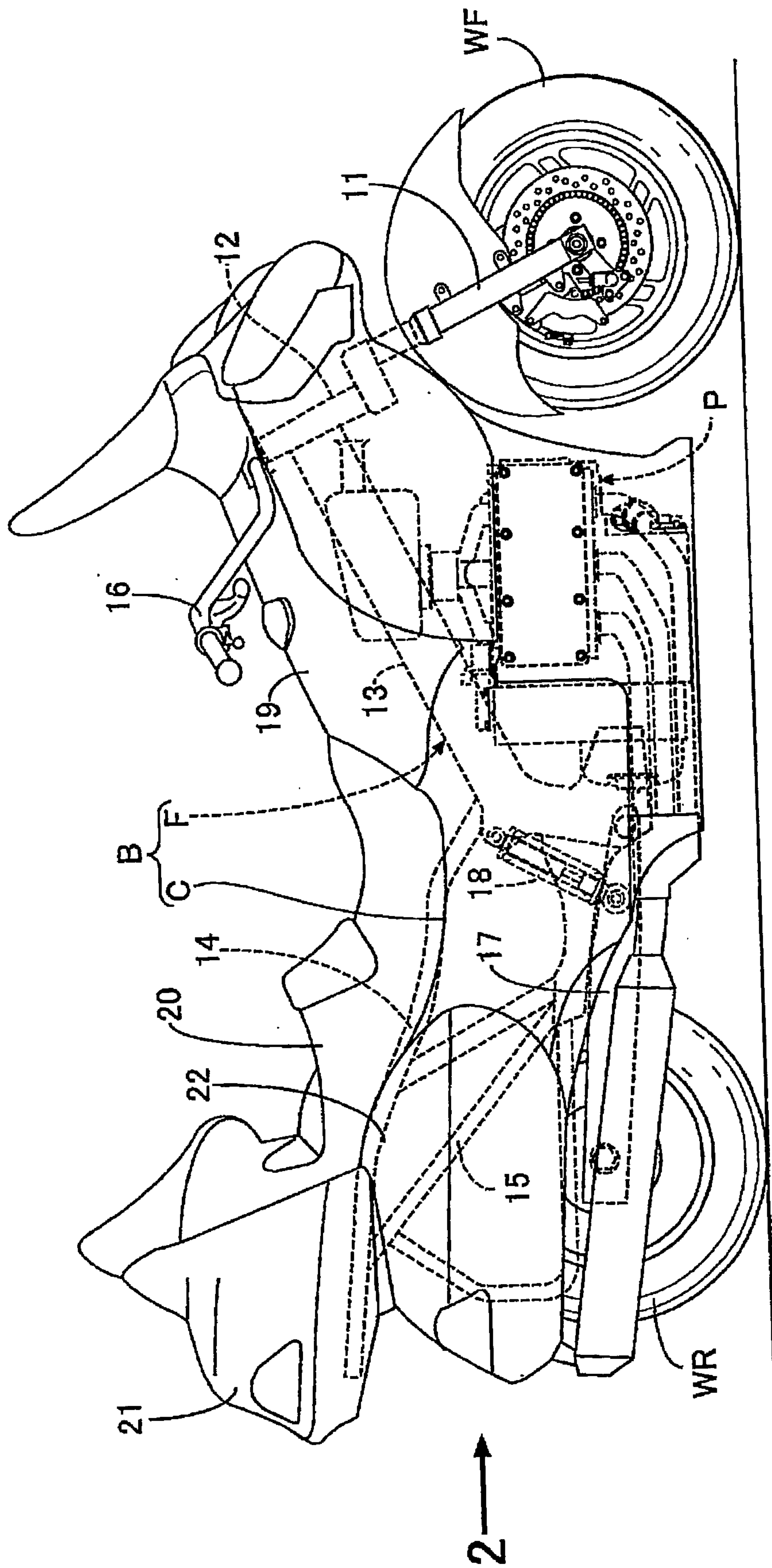
1. A wiring structure of a rear combination light where a light-side wire
5 extending from the rear combination light which is mounted on a rear portion of a
vehicle body while facing a rear surface of the vehicle body in an opposed manner is
connected to a vehicle-body-side wire between the rear surface of the vehicle body
and the rear combination light, wherein
a vehicle-body-side wire holding portion for holding an intermediate portion
10 of the vehicle-body-side wire is mounted on the rear surface of the vehicle body, a
stay which extends along the mounting direction for mounting the rear combination
light on the rear portion of the vehicle body is mounted on the rear combination
light, a light-side wire holding portion which holds an intermediate portion of the
light-side wire on a distal end portion of the stay is mounted on the stay, and in a
15 state where the rear combination light is mounted on the rear portion of the vehicle
body, the light-side wire is connected to the vehicle-body-side wire by way of a wire
coupler which is arranged between the rear surface of the vehicle body and a back
surface of the rear combination light.
- 20 2. The wiring structure of a rear combination light according to claim 1, wherein
the stay is mounted on the rear combination light at a position offset to one side
from an imaginary straight line which extends in the longitudinal direction while
passing the center of the rear combination light in the vehicle widthwise direction,
and the vehicle-body-side wire holding portion is arranged at a position offset to the
25 other side from the imaginary straight line in the vehicle widthwise direction in a
state where the rear combination light is mounted on the rear portion of the vehicle
body.
3. The wiring structure of a rear combination light according to claim 1 or 2,
30 wherein a length of the stay is set such that, in a state where the rear combination
light is mounted on the rear portion of the vehicle body, a distal end portion of the
stay extends toward a front side of the vehicle body beyond the rear surface of the
vehicle body on which the vehicle-body-side wire holding portion is mounted.
- 35 4. The wiring structure of a rear combination light according to claim 3,
wherein a wire length of the light-side wire from the vehicle-body-side wire holding
portion to the light-side wire holding portion at a distal end of the stay is set to a

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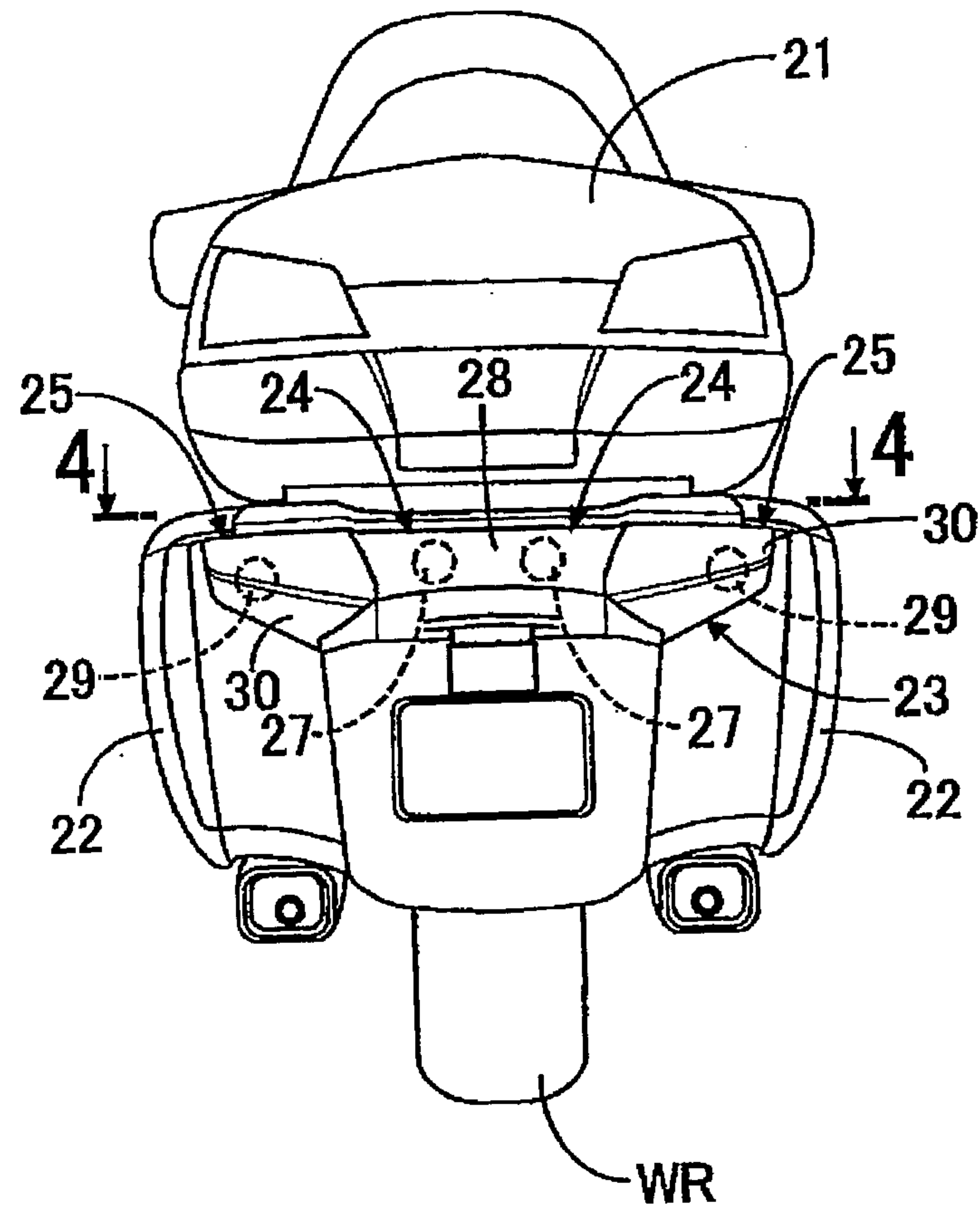
value which is obtained by adding the length of the stay to a length between the stay and the vehicle-body-side wire holding portion in a state where the rear combination light is mounted on the rear portion of the vehicle body.

- 5 5. The wiring structure of a rear combination light according to any one of claims 1 to 4, wherein the rear combination light includes a pair of left and right tail lights, and a pair of left and right blinker lights which sandwiches the tail lights from both sides in the vehicle widthwise direction.
- 10 6. The wiring structure of a rear combination light according to any one of claims 1 to 5, wherein the vehicle body is a vehicle body of a motorcycle.
- 15 7. The wiring structure of a rear combination light according to any one of claims 1 to 6, wherein the rear combination light is arranged below a trunk which is mounted on the vehicle body above a rear wheel of the motorcycle.

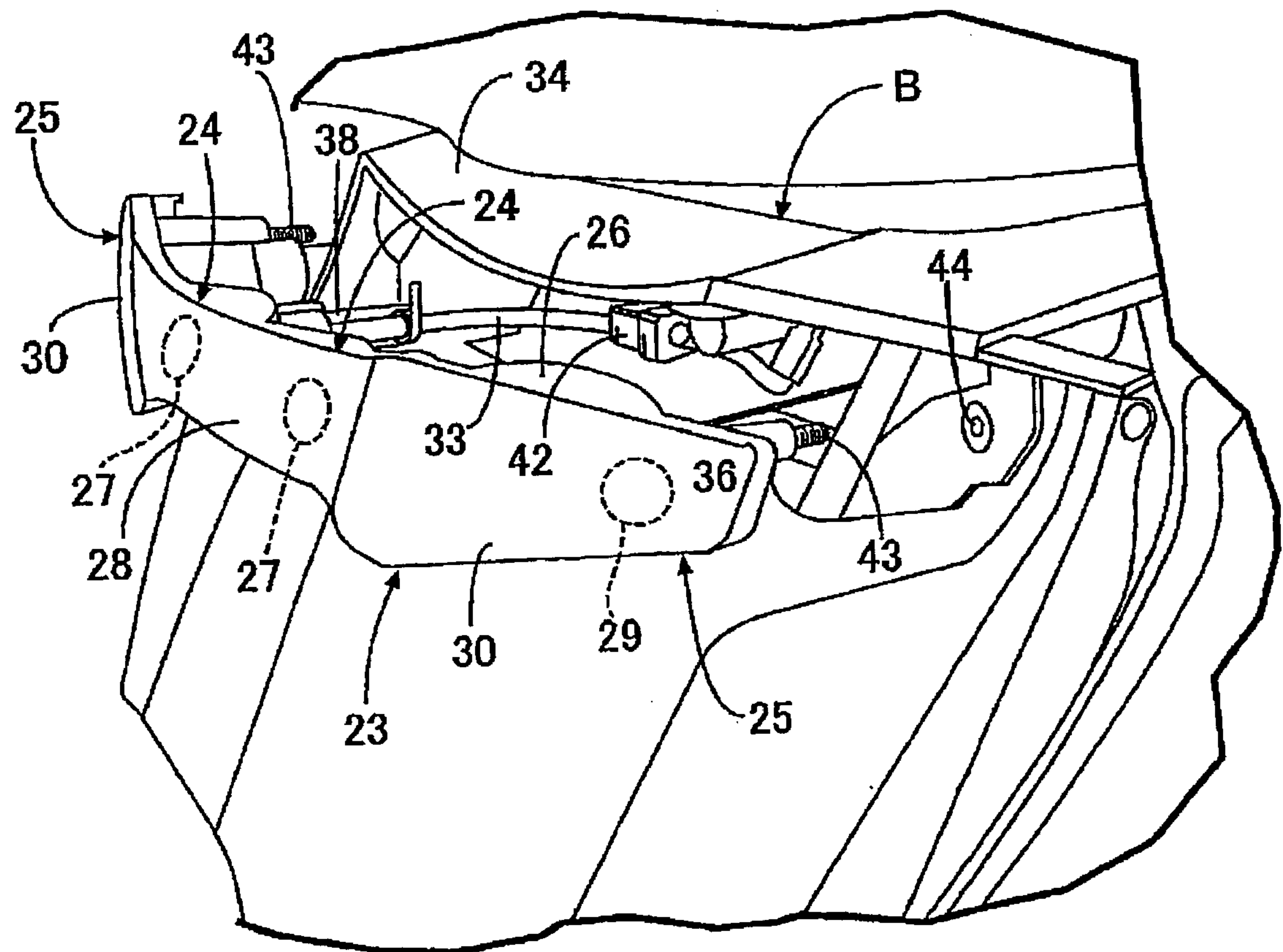
[Fig. 1]



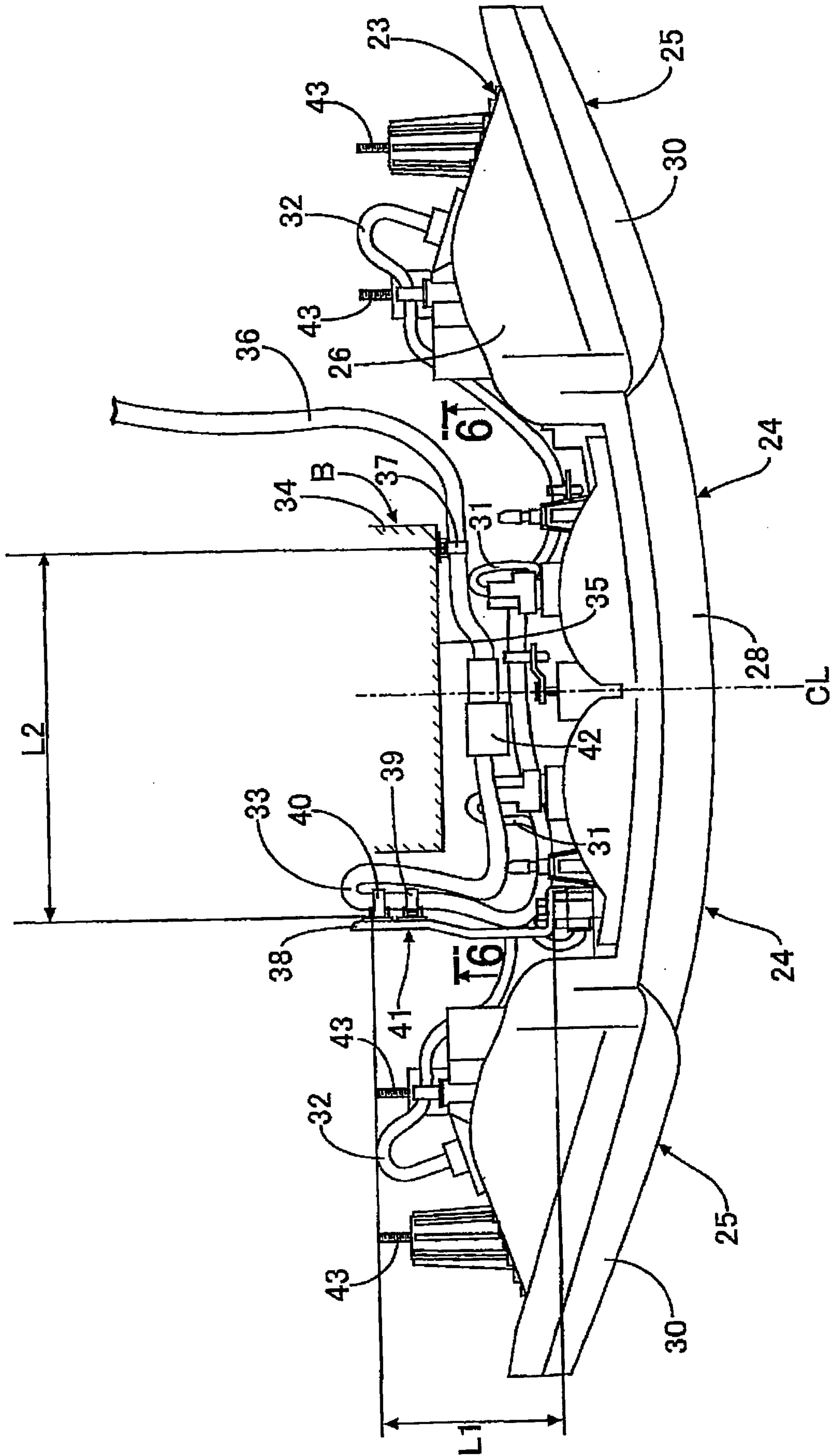
[Fig. 2]



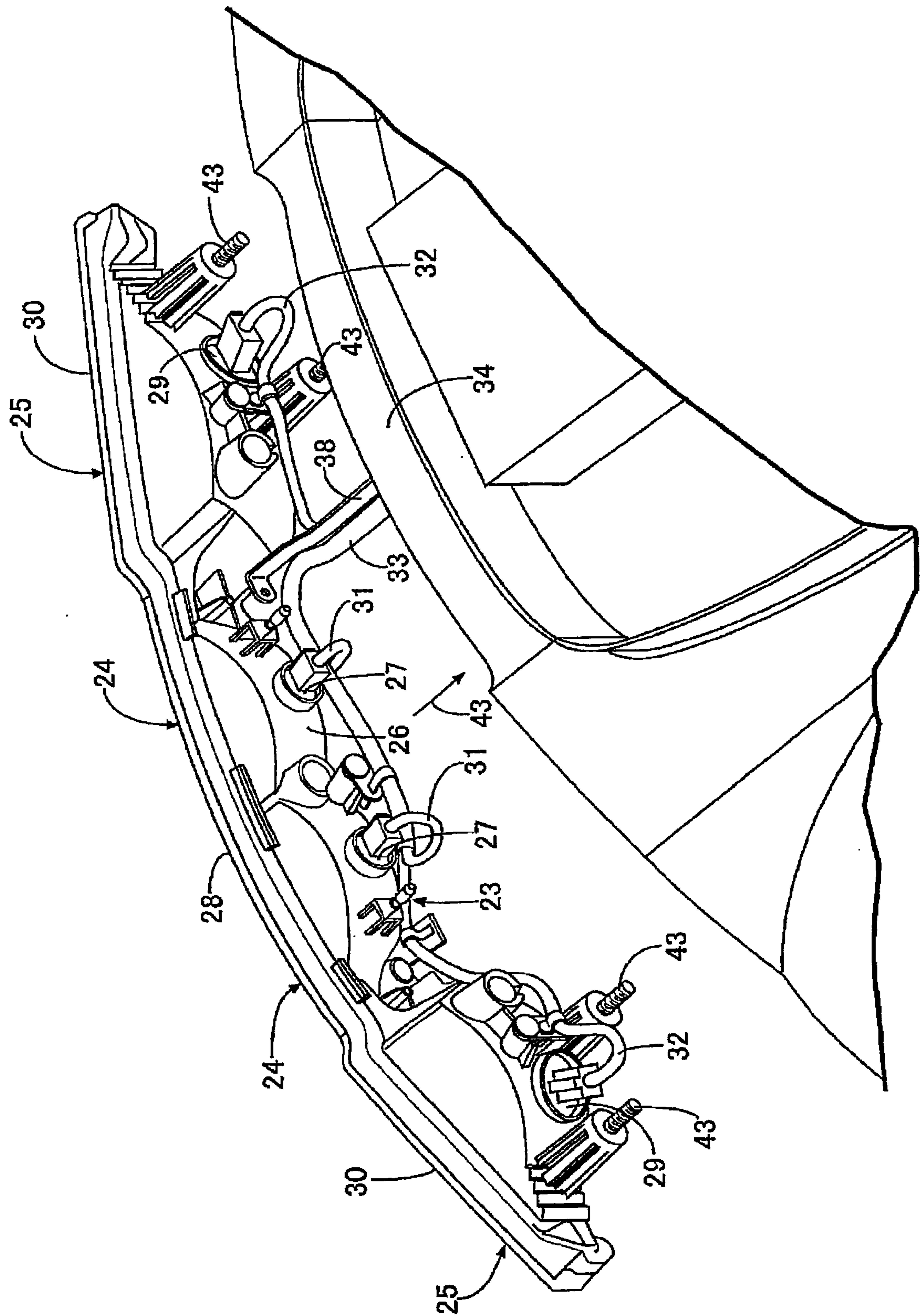
[Fig. 3]



[Fig. 4]



[Fig. 5]



[Fig. 6]

