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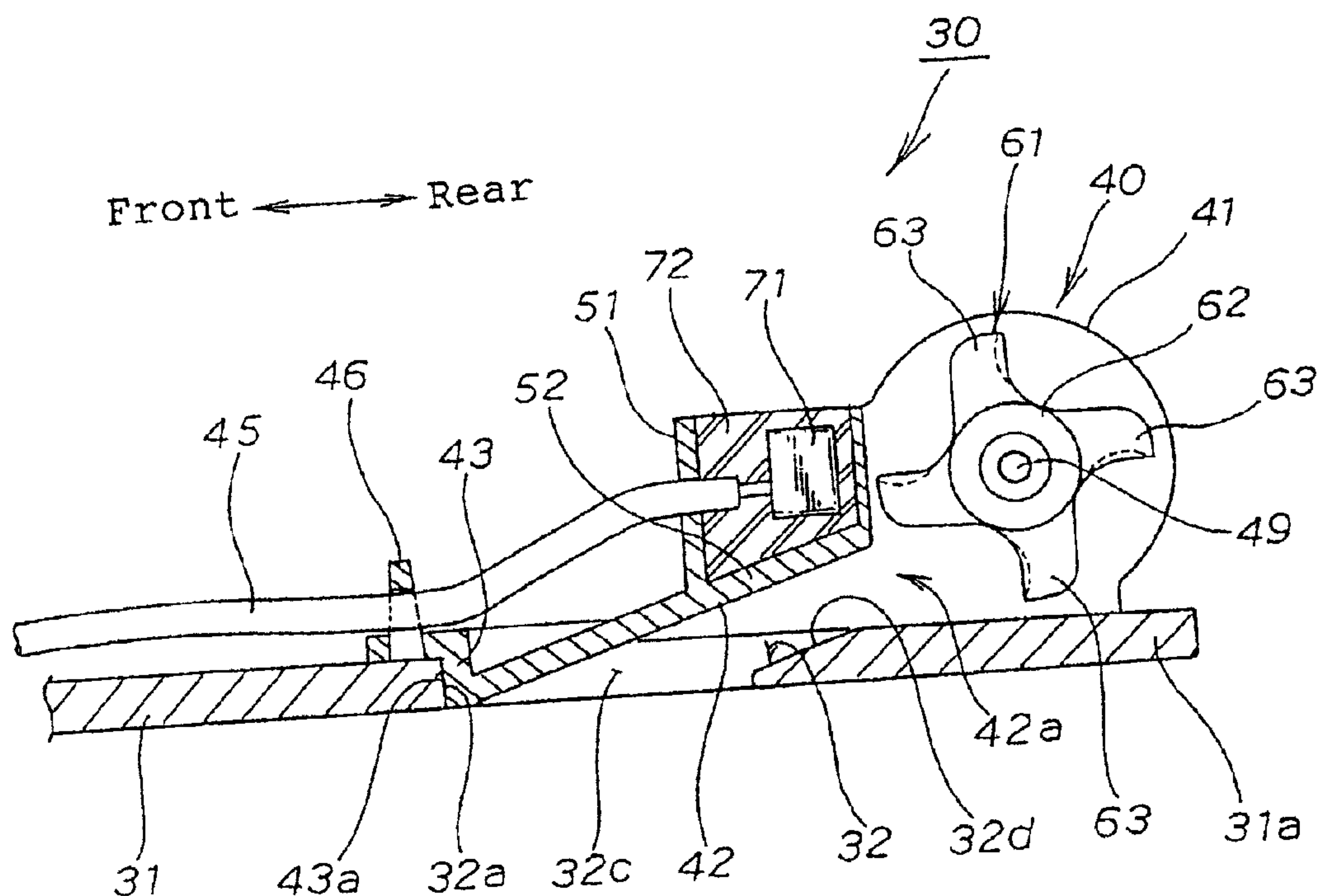
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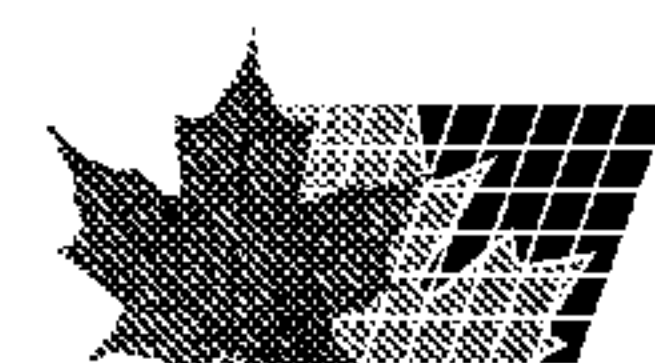
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(54) Title: SPEED DETECTING DEVICE MOUNTING STRUCTURE FOR A VESSEL



(57) Abrégé/Abstract:

To provide a speed detecting device mounting structure for a vessel (1) in which the paddle is prevented from being entangled with rubbish and seaweeds in the sea, and the paddle is prevented from being attached with sea-bottom mud or the like. In a vessel comprising a water jet pump provided at the rear portion of the vessel, a ship bottom plate (31) provided below the water jet pump, a speed detecting device (40) mounted on the ship bottom plate (31), and a paddle (61) of the speed detecting device (40) for detecting the flow rate of water flow and obtaining the propelling speed, the speed detecting device mounting structure for a vessel (30) is constructed in such a manner that the paddle (61) of the speed detecting device (40) is disposed on the upper surface of the ship bottom plate (31), an opening (32) is formed at the portion of the ship bottom plate (31) forwardly of the speed detecting device (40), and water taken through the opening (32) is guided to the speed detecting device (40).



ABSTRACT OF THE DISCLOSURE

To provide a speed detecting device mounting structure for a vessel (1) in which the paddle is prevented from being entangled with rubbish and seaweeds in the sea, and the paddle is prevented from being attached with seabottom mud or the like. In a vessel comprising a water jet pump provided at the rear portion of the vessel, a ship bottom plate (31) provided below the water jet pump, a speed detecting device (40) mounted on the ship bottom plate (31), and a paddle (61) of the speed detecting device (40) for detecting the flow rate of water flow and obtaining the propelling speed, the speed detecting device mounting structure for a vessel (30) is constructed in such a manner that the paddle (61) of the speed detecting device (40) is disposed on the upper surface of the ship bottom plate (31), an opening (32) is formed at the portion of the ship bottom plate (31) forwardly of the speed detecting device (40), and water taken through the opening (32) is guided to the speed detecting device (40).

TITLE: SPEED DETECTING DEVICE MOUNTING STRUCTURE FOR A VESSEL

5 FIELD OF THE INVENTION

The present invention relates to a speed detecting device mounting structure for a vessel in which a speed detecting device is provided on the ship bottom plate to obtain the propelling speed by detecting a flow
10 rate of water by means of a paddle in the speed detecting device.

BACKGROUND OF THE INVENTION

One of the existing types of jet propulsion
15 boats includes a water jet pump to be mounted on the rear portion of the vessel body and is propelled by sucking water from the ship bottom by driving the water jet pump and splashing sucked water rearward. This type of jet propulsion boat is provided with a speed detecting device
20 on the ship bottom plate at the rear portion of the vessel body for detecting the propelling speed.

As a speed detecting device mounting structure, for example, a "Propelling speed detecting device for vessels" disclosed in Japanese Patent Laid-Open
25 No.304831/11 is known. This technology will be described below referring a part of Fig. 5 in the same publication.

Fig. 6 is a bottom view of the rear portion of the vessel in the related art, showing a state in which a speed detecting device is mounted on the ship bottom
30 plate. The vessel 100 is comprises a ship bottom plate 101 formed with a flowing water draining groove 102 extending in the fore-and-aft direction of the vessel, a notch 103 formed at the rear end of the flowing water draining groove 102, a body of revolution (hereinafter
35 referred to as a paddle) 106 of the speed detecting

device 105 rotatably mounted on the notch 103, and a sensor body 108 for detecting the number of revolution of the paddle 106 in the vicinity of the paddle 106.

According to the speed detecting device mounting structure, when the vessel 100 is propelled by a water jet pump (not shown), water runs along the flowing water draining groove 102 as shown by the arrow a. Water flow as the arrow a reaches the paddle 106, strikes blades 107... of the paddle 106, and rotates the paddle 106. The propelling speed of the vessel 100 can be obtained by detecting the number of revolution of the paddle 106 by the sensor body 108.

However, since the speed detecting device mounting structure is provided with a paddle 106 at the notch 103 of the ship bottom plate 101 in the related art, the paddle 106 is exposed in the sea via the notch 103. Therefore, the paddle 106 is in danger of being entangled with rubbish or seaweeds drifting in the sea.

In addition, since the paddle 106 is exposed in the sea, for example, when the vessel 100 runs ashore, the paddle 106 is in danger of being attached with sea-bottom mud or the like.

Accordingly, the object of the present invention is to provide a speed detecting device mounting structure for a vessel in which the paddle is prevented from being entangled with rubbish or seaweeds in the sea, and from being attached with sea-bottom mud.

SUMMARY OF THE INVENTION

In order to solve the problems described above, according to the present invention is a vessel comprising a water jet pump provided at the rear portion of the vessel, a ship bottom plate provided below the water jet pump, a speed detecting device mounted on the ship bottom plate, a paddle of the speed detecting device being

rotated by water so as to obtain the propelling speed based on the rotation of the paddle, characterized in that the paddle is disposed above the ship bottom plate, an opening is formed at the portion of the ship bottom plate forwardly of the paddle, and water taken through the opening is guided to the paddle.

The paddle of the speed detecting device is disposed above the ship bottom plate and a opening is formed forwardly of the paddle. Therefore, by covering the paddle with the ship bottom plate, the paddle can be closed off the sea by the ship bottom plate. Therefore, since the paddle can be protected by the ship bottom plate, the paddle is prevented from being entangled with rubbish or seaweeds drifting in the sea.

In addition, by protecting the paddle by the ship bottom plate, for example, even when the vessel runs ashore, the paddle is prevented from being attached with sea-bottom mud.

BRIEF DESCRIPTION OF THE DRAWINGS

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

Fig. 1 is a side view of the vessel provided with a speed detecting device mounting structure according to the present invention.

Fig. 2 is an enlarged view of the portion designated by the numeral 2 in Fig. 1.

Fig. 3 is an exploded perspective view of the speed detecting device mounting structure for a vessel according to the present invention.

Fig. 4 is a cross sectional view of a speed detecting device mounting structure for a vessel according to the present invention.

Fig. 5 is an explanatory drawing illustrating the operation of a speed detecting device mounting

structure for a vessel according to the present invention.

Fig. 6 is a bottom view of the rear portion of the vessel.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, embodiments of the present invention will now be described. The figures are to be viewed in the orientation in which the reference numerals are shown in the right way.

Fig. 1 is a side view of the vessel provided with a speed detecting device mounting structure.

The vessel 10 comprises a fuel tank 14 mounted on the front portion 11a of the vessel body 11, an engine 15 provided rearwardly of the fuel tank 14, a water jet pump 20 provided rearwardly of the engine 15, a steering handle 25 mounted above the fuel tank 14, a seat 27 mounted rearwardly of the steering handle 25, a ship bottom plate 31 provided below the water jet pump 20, and a speed detecting device 40 mounted on the ship bottom plate 31.

The water jet pump 20 comprises a housing 21 extending rearwardly from the opening 13 of the vessel bottom 12, and an impeller 22 rotatably mounted in the housing 21 and connected to the drive shaft 16 of the engine 15.

The speed detecting device 40 mounted on the ship bottom plate 31 is located below the rear end of the housing 21.

With the water jet pump 20, water sucked through the opening 13 of the vessel bottom 12 can be splashed rearwardly of the vessel body 11 through the rear end opening of the housing 21 from the steering pipe (steering nozzle) 23 by driving the engine 15 and rotating the impeller 22.

The steering pipe (steering nozzle) 23 is a member mounted at the rear end of the housing so as to be capable of a swinging motion in the lateral direction. The steering nozzle 23 is a nozzle for steering used for controlling the steering direction of the vessel body 11 by being swung by operating the steering handle 25 in the lateral direction.

The vessel 10 can be propelled by feeding fuel from a fuel tank 14 to the engine 15 and driving the engine 15, transmitting a driving force of the engine 15 to the impeller 22 via a drive shaft 16, sucking water from the opening 13 of the vessel bottom 12 by rotating the impeller 22, and splashing sucked water through the rear end of the housing 21 from the steering nozzle 23.

Fig. 2 is an enlarged view of a portion represented by the numeral 2 in Fig. 1, showing a side view of a speed detecting device mounting structure 30 for a vessel in a state in which a ship bottom plate 31 is attached on the speed detecting device 40.

In the speed detecting device mounting structure 30 for a vessel, a speed detecting device 40 is placed on the upper surface of the ship bottom plate 31, a front insert 43 of the speed detecting device 40 is inserted into the opening 32 of the ship bottom plate 31, the tip 43a of the front insert 43 is abutted against the front wall surface 32a of the opening 32, the opening 32 is brought into communication with the conducting channel 42 of the speed detecting device 40, and the speed detecting device 40 is mounted on the ship bottom plate 31 by screwing the bolts 34...into screw holes 44a....

The speed detecting device mounting structure 30 for vessel will now be described in detail below.

Fig. 3 is an exploded perspective view of the speed detecting device mounting structure for a vessel according to the present invention.

The speed detecting device mounting structure 30 for a vessel comprises a paddle 61 of the speed detecting device 40 above the ship bottom plate 31, an opening 32 formed at a portion of the ship bottom plate 31 forwardly of the paddle 61, and a conducting channel 42 (shown in Fig. 2) for conducting water from the opening 32 to the paddle 61 formed on the speed detecting device 40.

The opening 32 of the ship bottom plate 31 is a rectangular through hole extending in the fore-and-aft direction of the vessel 10, comprising a front wall surface 32a and left and right wall surfaces 32b, 32c formed as vertical planes, and a rear wall surface 32d with upward inclination toward the rear. The ship bottom plate 31 is provided with through holes 35... for passing the bolts 34... through near four corners of the opening 32.

The speed detecting device 40 comprises a case 41 to be mounted on the ship bottom plate 31, a paddle 61 to be rotatably mounted at the rear end of the case 41, a sensor body 71 provided forwardly of the paddle 61 and connected to the speedometer (not shown) via the harness 45, and a mold 72 for imbedding the sensor body 71 therein.

The case 41 comprises a base portion 44 formed in a substantially rectangular; screw holes 44a... are formed at four corners of the base portion 44; a holding portion 46 for holding a harness 45 is formed between the front right and left screw holes 44a, 44a; the base portion 44 is formed with left and right arcuate supporting plates 47, 48 at the rear end thereto; mounting holes 47a, 48a are formed at substantially centers of the left and right arcuate supporting plates 47, 48; a shaft 49 is inserted into these mounting holes 47a, 48a for rotatably mounting the paddle 61 between the

left and right arcuate supporting plates 47, 48; a rectangular sensor storage 51 is formed forwardly of the left and right arcuate supporting plates 47, 48; and the bottom surface 52 (shown in Fig. 2) of the sensor storage 51 has upward inclination toward the rear.

The bottom surface 52 of the sensor storage 51 is a portion on which a conducting channel 42 (shown in Fig. 2) is formed.

The paddle 61, being a paddle formed, for example, of a magnetic material such as plamag (plastic magnets), comprises a cylindrical paddle body 62, a thorough hole 62a for passing the shaft 49 through formed at the center of the paddle body 62, and four blades 63... formed on the outer periphery of the paddle body 62 at intervals of 90°.

The paddle 61 may also be formed of a magnetic material other than plamag.

The blade 63 has a water-receiving surface formed into a curved concave shape for receiving water thereon. Therefore, the paddle 61 can be rotated effectively about the shaft 49. The number of blades 63... is not limited to four, but is arbitrary.

When mounting the paddle 61 between the arcuate supporting plates 47, 48 of the case 41, the paddle 61 is disposed between the left and right arcuate supporting plates 47, 48, and the shaft 49 is inserted into the mounting holes 47a, 48a of the left and right arcuate supporting plates 47, 48 and the through hole 62a of the paddle 61 as shown by the arrow, so that the paddle 61 is rotatably mounted between the left and right arcuate supporting plates 47, 48.

The sensor body 71 is a magnet sensor for detecting the number of revolution of the paddle 61 based on variations in magnet field generated by the rotation

of the paddle 61, and transmitting detected signals to the speedometer.

Fig. 4 is a cross sectional view of a speed detecting device mounting structure for a vessel according to the present invention.

The speed detecting device mounting structure 30 for a vessel comprises a paddle 61 rotatably disposed above the rear end 31a of the ship bottom plate 31 via a case 41, and a sensor body 71 disposed in the sensor storage 51 and connected to the speedometer (not shown) via a harness 45.

In the speed detecting device mounting structure 30 for a vessel, the front insert 43 of the speed detecting device 40 is inserted into the opening 32 of the ship bottom plate 31, the tip 43a of the front insert 43 is abutted against the front wall surface 32a of the opening 32, and the opening 32 is brought into communication with the conducting channel 42.

In addition, in the speed detecting device mounting structure 30 for a vessel, the conducting channel 42 is upwardly inclined toward the rear, so that the blades 63... of the paddle 61 face toward the exit 42a of the conducting channel 42.

Therefore, water taken through the opening 32 of the ship bottom plate 31 is conducting to the conducting channel 42, water passed through the conducting channel 42 is flown rearwardly from the exit 42a of the conducting channel 42, so that water strikes the blades 63... of the paddle 61. By striking of water on the blades 63... of the paddle 61, the paddle 61 can be rotated counterclockwise about the shaft 49 of the paddle 61.

Here, by providing the conducting channel 42 with upward inclination, water taken from the opening 32 of the ship bottom plate 31 can be conducted smoothly to

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the conducting channel 42, and water in the conducting channel 42 can be conducted smoothly to the exit 42a of the conducting channel 42 and then smoothly from the exit 42a of the conducting channel 42 to the blades 63... of the paddle 61.

Therefore, the paddle 61 can be effectively rotated about the shaft 49.

When the propelling speed of the vessel 10 shown in Fig. 1 is high, the flowing speed of water in the conducting channel 42 increases, and thus the paddle 61 rotates at a high speed. In contrast to it, when the propelling speed of the vessel 10 is low, the flowing speed of water in the conducting channel 42 decreases, and thus the paddle 61 rotates at a low speed.

Since the conducting channel 42 is formed integrally with the case 41 as shown in Fig. 4, the number of components can be reduced.

In the speed detecting device 40, the sensor body 71 is disposed in the sensor storage 51, and the sensor body 71 is disposed so as to face toward the blades 63... of the paddle 61. By disposing the sensor body 71 so as to face toward the blades 63... of the paddle 61, variations in magnetic field generated by the rotation of the paddle 61 can be reliably detected.

Therefore, the number of revolution of the paddle 61 can be accurately detected by the sensor body 71.

With this speed detecting device 40, when the paddle 61 rotates about the shaft 49 and variations in magnetic field is generated, the sensor body 71 detects the number of rotation of the paddle 61 based on variations in the magnetic field, and detected signals are transmitted to the speedometer from the sensor body 71. Accordingly, the propelling speed of the vessel 10 can be displayed on the speedometer.

The paddle 61 of the speed detecting device 40 is rotatably disposed on the ship bottom plate 31 via the case 41, and the opening 32 is formed forwardly of the paddle 61 at the position passed over the paddle 61.

5 Therefore, by closing the paddle 61 off the sea by the ship bottom plate 31, the paddle 61 can be protected by the ship bottom plate 31.

Therefore, in the unlikely event that the vessel 10 runs ashore, the paddle 61 can be prevented
10 from being attached with sea-bottom mud.

By protecting the paddle 61 with the ship bottom plate 31, the paddle 61 is prevented from being entangled with, for example, rubbish or seaweeds drifting in the sea.

15 In addition, in the speed detecting device mounting structure 30 for the vessel 10, the sensor body 71 is disposed in the sensor storage 51 so that it can be disposed above the ship bottom plate 31. In addition, the sensor body 71 is disposed in the sensor storage 51,
20 so that the sensor body 71 can be disposed above the bottom surface 52, which is a component of the conducting channel 42.

Therefore, the sensor body 71 can be closed off the sea by the ship bottom plate 31 or the bottom surface
25 52. Therefore, the sensor body 71 can be protected in the same manner as the paddle 61. In other words, in the unlikely event that the vessel 10 runs ashore, the sensor body 71 is prevented from being attached with sea-bottom mud or the like.

30 After the sensor body 71 is stored in the sensor storage 51, mold resin 72 is filled in the sensor storage 51, so that the sensor body 71 can be embedded within the mold resin 72. Therefore, the sensor body 71 is protected by mold resin 72.

The operation of the speed detecting device mounting structure for a vessel will now be described referring Fig. 5.

Fig. 5 is an explanatory drawing illustrating the operation of a speed detecting device mounting structure for a vessel according to the present invention.

By propelling the vessel 10 shown in Fig. 1 by the water jet pump 20, water is taken through the opening 32 of the ship bottom plate 31 as shown by the arrow (1), and water thus taken is then conducted to the conducting channel 42 of the speed detecting device 40.

Subsequently, water is conducted rearward along the upwardly inclined conducting channel 42, and flown toward the blades 63... of the paddle 61 from the exit 42a of the conducting channel 42 as shown by the arrow (2).

By providing the conducting channel 42 with upward inclination, water taken from the opening 32 of the ship bottom plate 31 can be conducted smoothly to the blades 63... of the paddle 61 via the conducting channel 42.

By allowing water to strike the blades 63... of the paddle 61, the paddle 61 is rotated about the shaft 49 as shown by the arrow (3).

By rotating the paddle 61 formed of electromagnetic material about the shaft 49, magnetic field varies. The number of revolutions of the paddle 61 is detected by the sensor body 71 based on variations in magnetic field, and the detected signals are transmitted to the speedometer via the harness 45. Consequently, the propelling speed of the vessel 10 can be displayed on the speedometer.

In the speed detecting device mounting structure 30 for vessels, the paddle 61 is disposed above

the ship bottom plate 31 (that is, above the rear end 31a of the ship bottom plate 31), and the paddle 61 is closed off the sea by the rear end 31a of the ship bottom plate 31.

5 Therefore, in the unlikely event that the vessel 10 runs ashore, the paddle 61 is prevented from being attached with sea-bottom mud. Simultaneously, the paddle 61 is prevented from being entangled with rubbish or seaweeds drifting in the sea.

10 In the aforementioned embodiment, while an example in which the conducting channel 42 is provided in the speed detecting device 40 for conducting water to the paddle 61 through the conducting channel 42 was explained, the conducting channel 42 may be provided on
15 the ship bottom plate 31 to obtain the same effect.

 In the aforementioned embodiment, while an example in which the number of revolution of the paddle 61 is detected based on variations in magnetic field by forming the paddle 61 of the speed detecting device 40 of
20 magnetic material and providing a magnetic sensor as the sensor body 71 has been described, the speed detecting device in which an optical sensor is employed is also applicable.

 The configuration of the case 41 of the speed
25 detecting device 40 is not limited to the configuration in the embodiment, and it is also possible to form it in the preferably configuration as needed.

 The present invention, being constructed as described above, exercises the following advantages.

30 In the invention according to a preferred embodiment, a paddle of the speed detecting device is disposed above the ship bottom plate, and an opening is formed forwardly of the paddle. Therefore, the paddle is closed off the sea by the ship bottom plate, so that the
35 paddle is protected by the ship bottom plate.

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Therefore, the paddle is prevented from being entangled, for example, with rubbish or seaweeds drifting in the sea.

5 In addition, by protecting the paddle with the ship bottom plate, when the vessel runs ashore for example, the paddle is prevented from being attached with sea-bottom mud.

As a consequent, the maintenance of the vessel can easily be performed without efforts.

10 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 spirit of the invention or the scope of the appended
15 claims.

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

1. In a vessel comprising a water jet pump provided at the rear portion of the vessel, a ship bottom plate provided below the water jet pump, a speed detecting device mounted on the ship bottom plate, a paddle of the speed detecting device being rotated by water so as to obtain a propelling speed based on the rotation of the paddle,

a speed detecting device mounting structure characterized in that the paddle is disposed above the ship bottom plate, an opening is formed at the portion of the ship bottom plate forwardly of the paddle, and water taken through the opening is guided to the paddle.

2. A speed detecting device mounting structure in a vessel comprising:

a water jet pump provided at a rear portion of the vessel;

a ship bottom plate provided below the water jet pump said ship bottom plate including an opening formed therein; and

a speed detecting device mounted on the ship bottom plate, a paddle of the speed detecting device being rotated by water so as to obtain a propelling speed based on the rotation of the paddle,

wherein the paddle is disposed above the ship bottom plate, an entirety of the opening is located forwardly of the paddle, and water taken through the opening is guided to the paddle.

3. The speed detecting device mounting structure in a vessel according to claim 2, wherein said speed detecting device further comprises a conducting channel for conducting

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water from said opening to said paddle.

4. The speed detecting device mounting structure in a vessel according to claim 3, wherein said speed detecting device includes a front insert inserted into said opening of the ship bottom plate, a tip of said front insert is abutted against a front wall surface of said opening, and said opening is in communication with said conducting channel.

5. The speed detecting device mounting structure in a vessel according to claim 2, wherein said opening of the ship bottom plate is a rectangular through-hole extending in a fore-and-aft direction of the vessel, a front wall surface and left and right wall surfaces of said through-hole are formed as vertical planes, a rear wall surface is formed with an upward inclination toward a rear of the vessel.

6. The speed detecting device mounting structure in a vessel according to claim 2, wherein said speed detecting device further comprises:

a case mounted on the ship bottom plate, said paddle being rotatably mounted at a rear end of said case;

a sensor body provided forwardly of said paddle, said sensor body being connectable to a speedometer of the vessel via a harness; and

a mold for imbedding said sensor body therein.

7. The speed detecting device mounting structure in a vessel according to claim 6, wherein said case includes a rectangular sensor storage for receiving said sensor body and said mold, a bottom surface of said sensor storage having an upward inclination toward a rear of the vessel.

8. A vessel, comprising:

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a water jet pump provided at a rear portion of the vessel;

a ship bottom plate provided below said water jet pump, said ship bottom plate including an opening formed therein; and

a speed detecting device mounted on said ship bottom plate, said speed detecting device including a paddle located above said ship bottom plate and rearwardly of a rear wall of said opening in said ship bottom plate,

wherein water taken through said opening in said ship bottom plate is guided to said paddle to rotate said paddle to obtain a propelling speed of said vessel based on the rotation of said paddle.

9. The vessel according to claim 8, wherein said speed detecting device further comprises a conducting channel for conducting water from said opening to said paddle.

10. The vessel according to claim 9, wherein said speed detecting device includes a front insert inserted into said opening of the ship bottom plate, a tip of said front insert is abutted against a front wall surface of said opening, and said opening is in communication with said conducting channel.

11. The vessel according to claim 8, wherein said opening of the ship bottom plate is a rectangular through-hole extending in a fore-and-aft direction of the vessel, a front wall surface and left and right wall surfaces of said through-hole are formed as vertical planes, a rear wall surface is formed with an upward inclination toward a rear of the vessel.

12. The vessel according to claim 8, wherein said speed

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detecting device further comprises:

a case mounted on the ship bottom plate, said paddle being rotatably mounted at a rear end of said case;

a sensor body provided forwardly of said paddle, said sensor body being connectable to a speedometer of the vessel via a harness; and

a mold for imbedding said sensor body therein.

13. The vessel according to claim 12, wherein said case includes a rectangular sensor storage for receiving said sensor body and said mold, a bottom surface of said sensor storage having an upward inclination toward a rear of the vessel.

14. A speed detecting device mounting structure for a vessel, the vessel including a water jet pump provided at a rear portion thereof, said speed detecting device mounting structure comprising:

a ship bottom plate provided below the water jet pump, said ship bottom plate including an opening formed therein; and

a speed detecting device mounted on said ship bottom plate, said speed detecting device including a paddle located above said ship bottom plate and rearwardly of a rear wall of said opening in said ship bottom plate,

wherein water taken through said opening in said ship bottom plate is guided to said paddle to rotate said paddle to obtain a propelling speed of the vessel based on the rotation of said paddle.

15. The speed detecting device mounting structure for a vessel according to claim 14, wherein said speed detecting device further comprises a conducting channel for conducting water from said opening to said paddle.

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16. The speed detecting device mounting structure for a vessel according to claim 15, wherein said speed detecting device includes a front insert inserted into said opening of the ship bottom plate, a tip of said front insert is abutted against a front wall surface of said opening, and said opening is in communication with said conducting channel.

17. The speed detecting device mounting structure for a vessel according to claim 14, wherein said opening of the ship bottom plate is a rectangular through-hole extending in a fore-and-aft direction of the vessel, a front wall surface and left and right wall surfaces of said through-hole are formed as vertical planes, a rear wall surface is formed with an upward inclination toward a rear of the vessel.

18. The speed detecting device mounting structure for a vessel according to claim 14, wherein said speed detecting device further comprises:

- a case mounted on the ship bottom plate, said paddle being rotatably mounted at a rear end of said case;

- a sensor body provided forwardly of said paddle, said sensor body being connectable to a speedometer of the vessel via a harness; and

- a mold for imbedding said sensor body therein.

19. The speed detecting mounting structure for a vessel according to claim 18, wherein said case includes a rectangular sensor storage for receiving said sensor body and said mold, a bottom surface of said sensor storage having an upward inclination toward a rear of the vessel.

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20. The speed detecting device according to claim 1, wherein at least a portion of said ship bottom plate is located directly below said paddle.

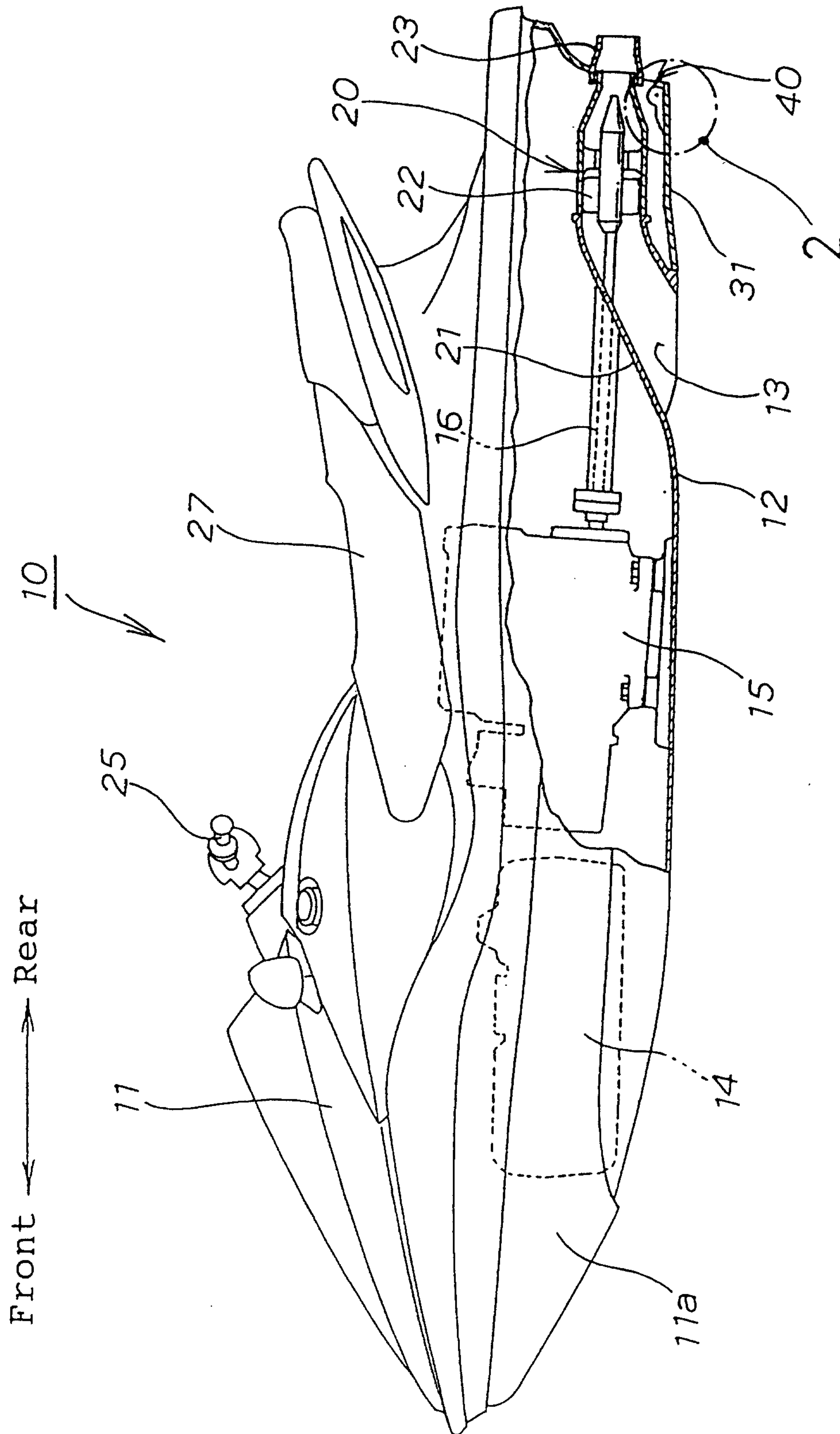
21. The vessel according to claim 8, wherein at least a portion of said ship bottom plate is located directly below said paddle.

22. The speed detecting device according to claim 14, wherein at least a portion of said ship bottom plate is located directly below said paddle.

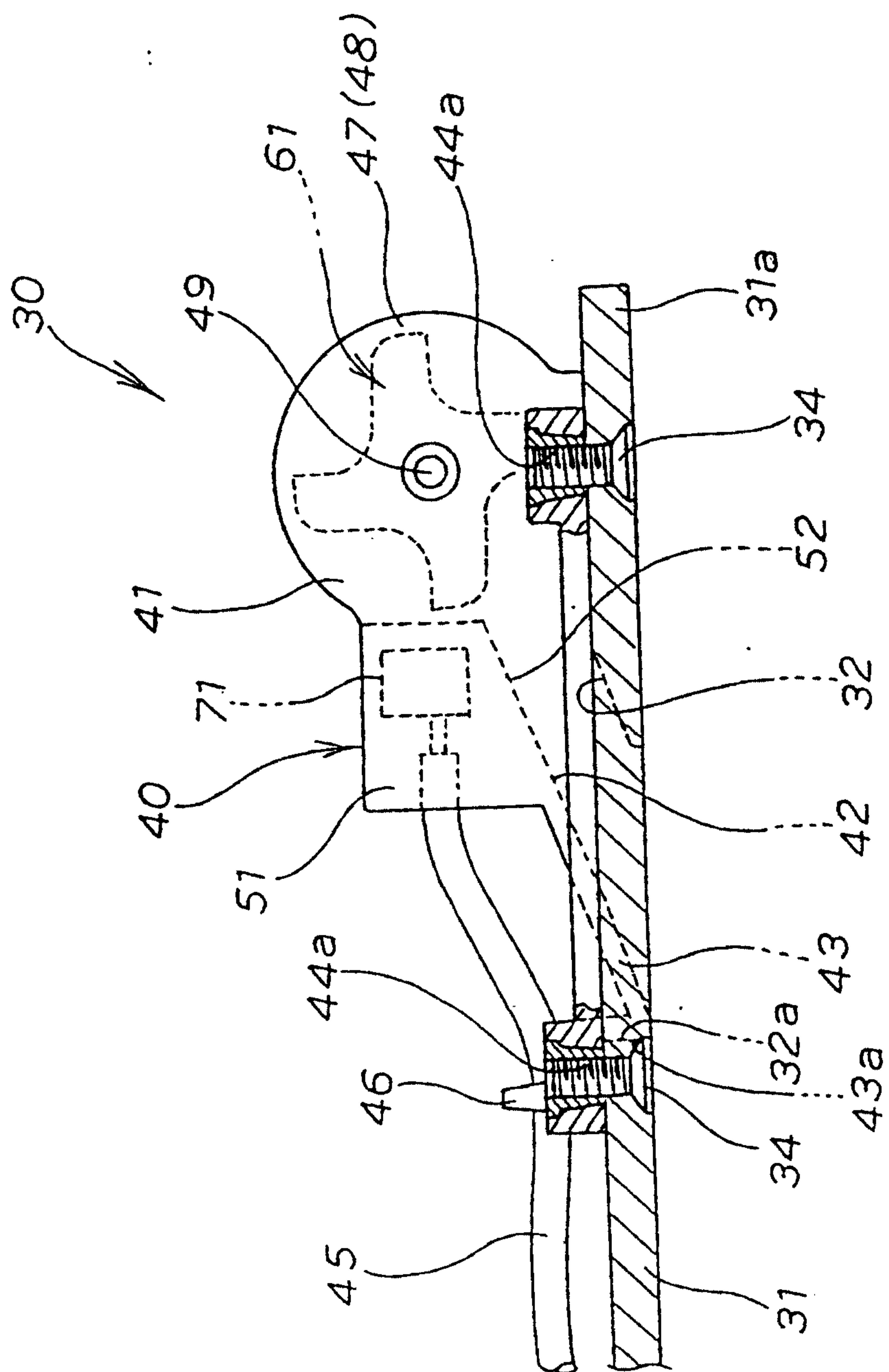
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Drawings

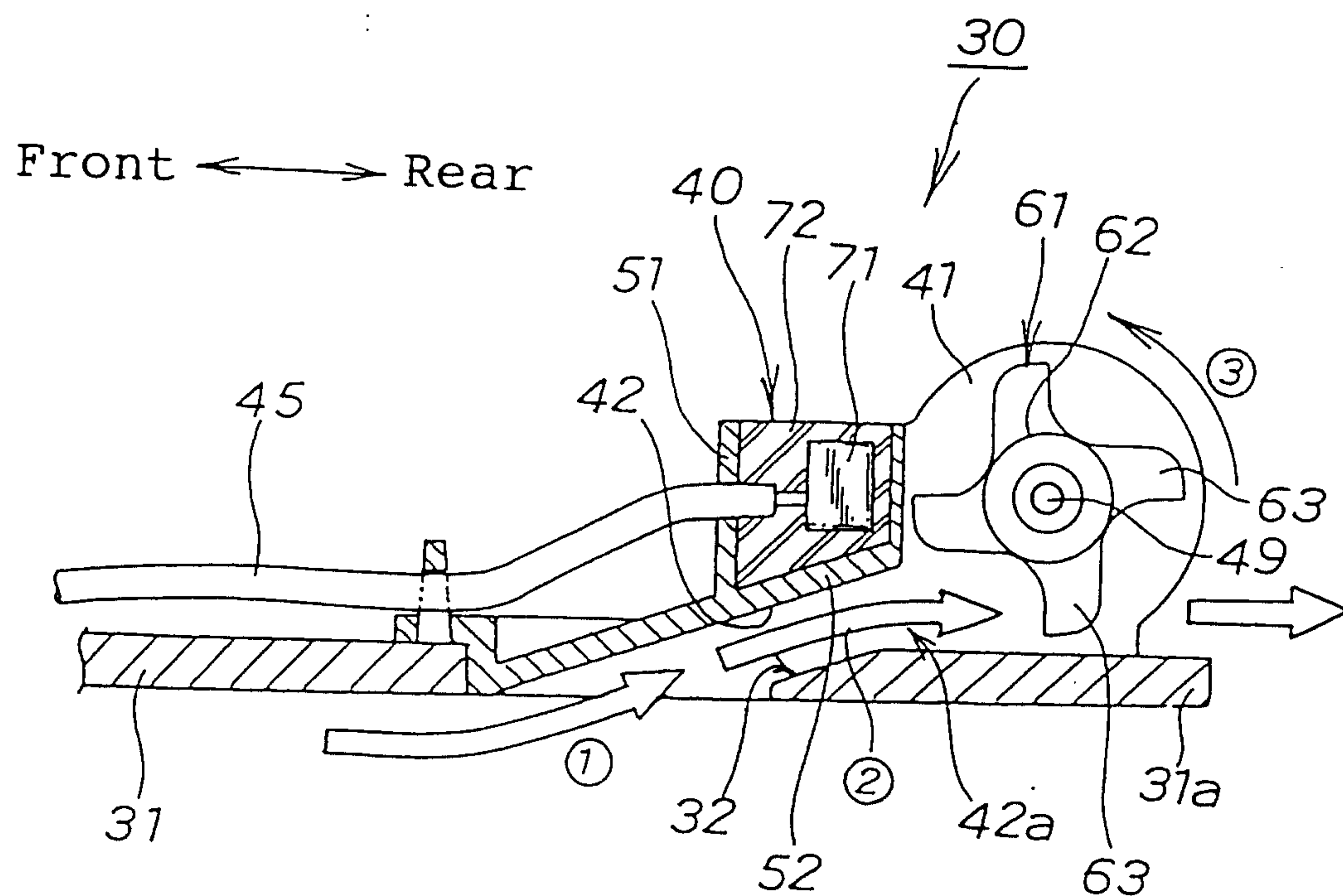
[Fig.1]



[Fig.2]



[Fig.5]



[Fig.6]

PRIOR ART

