

Nov. 26, 1929.

G. YAMANOUCHI

1,736,896

NAVIGATING MACHINE

Filed July 2, 1925

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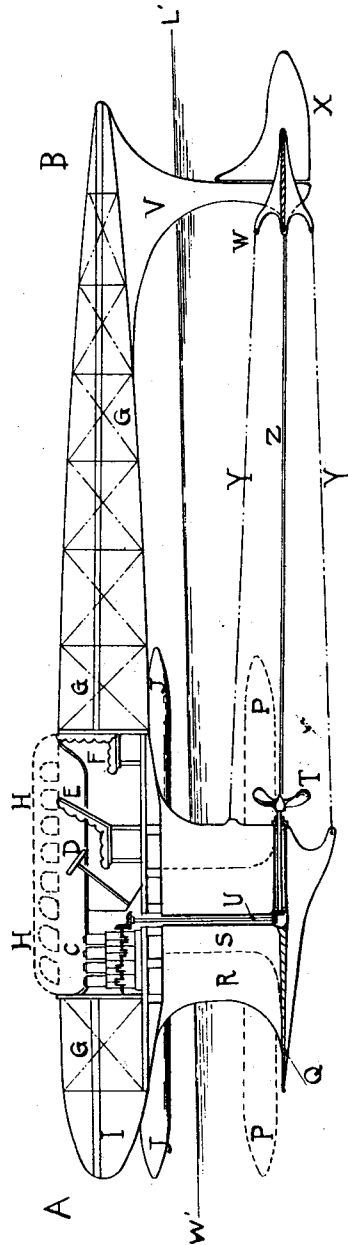


Fig. 1

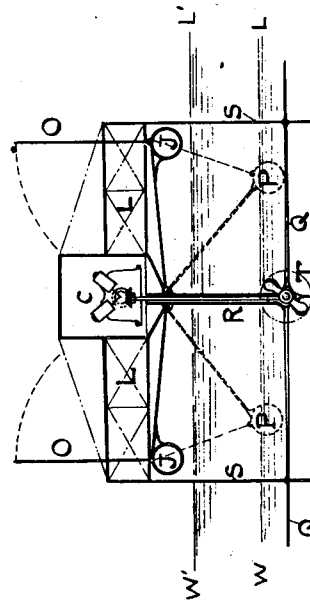


Fig. 4

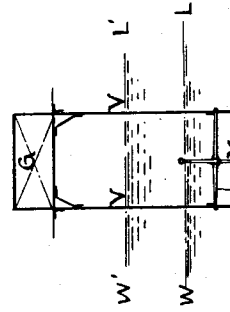


Fig. 5

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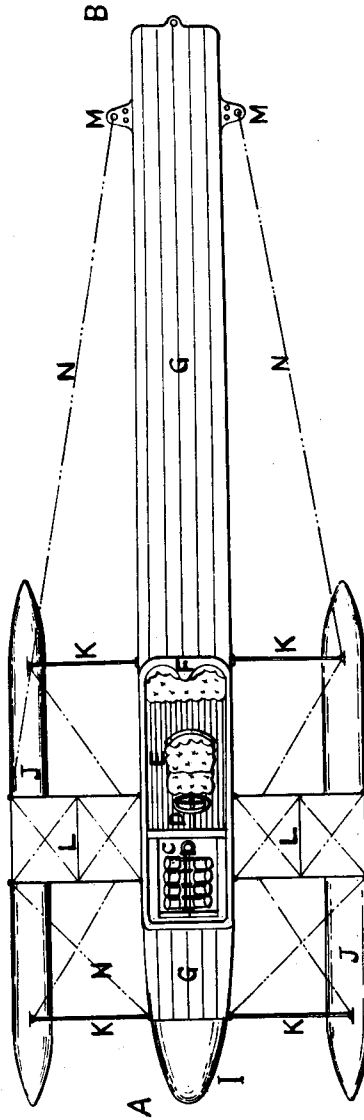
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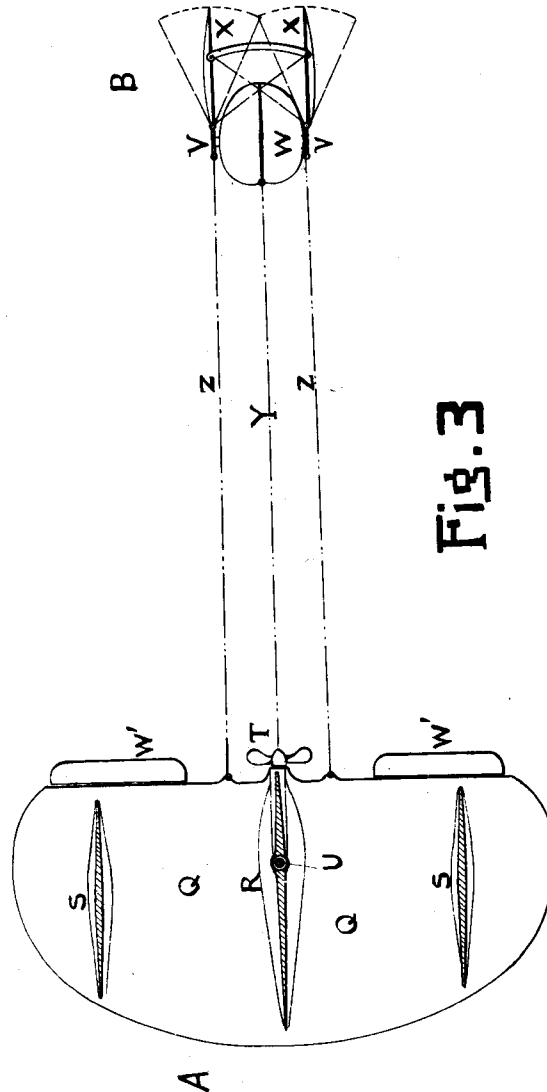


Fig. 3

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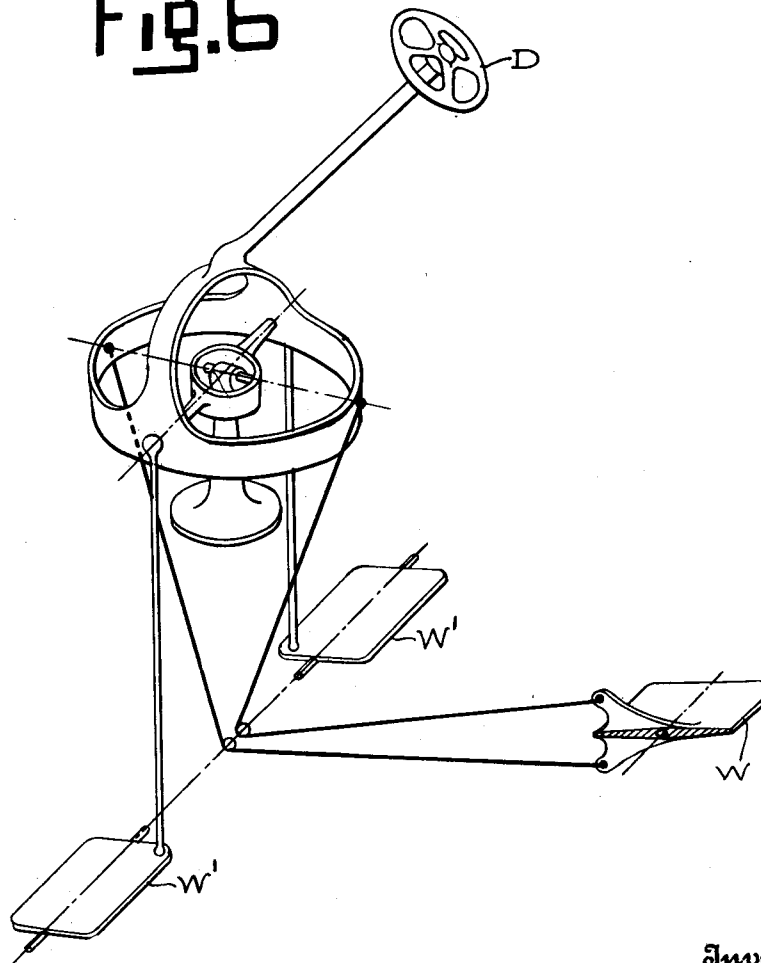
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Fig. 6



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UNITED STATES PATENT OFFICE

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NAVIGATING MACHINE

Application filed July 2, 1925, Serial No. 41,199, and in Japan September 26, 1923.

This invention relates to a navigating machine, the weight of which is supported by means of one or more otter boards fitted to the machine to keep the body of the machine
5 above water level, while one or more propellers and otter boards are kept deep in water by means of a draft regulating device such as a horizontal rudder or rudders. The object of the invention is to provide a navigating machine in which all of the body, propellers and otter boards thereof are not affected by waves so that rolling and pitching of the machine is minimized.

In the accompanying drawings,
15 Fig. 1 is a vertical central longitudinal sectional view of the machine.

Fig. 2 is a top plan view thereof.

Fig. 3 is a horizontal sectional view through the machine in the plane of the vertical ribs.

20 Figs. 4 and 5 are vertical transverse sectional views taken through the front and rear portions, respectively, of the machine.

Fig. 6 is a perspective view of a manoeuvring gear for the horizontal rudder.

25 Referring to the drawings in detail, A indicates the stem or front part and B the stern part of the machine. C is a propelling engine; D a rudder handle; E a seat for a navigator; F a seat for passengers; G the girder work of the hull of the machine, all these parts being of light and strong construction similar to those in a flying machine. The body of the machine is provided with wing bodies L, L at both sides thereof, while to
30 the stern part small projections M, M are fitted. N and N are steel wires or ropes to brace the front part, the wing bodies and the stern part as shown in Fig. 2. H is an awning arranged over the seats. The extreme front end I of the stern part is formed to minimize air resistance. J and J are buoys of torpedo shape arranged longitudinally and parallel to each other at both sides of the body of the machine by means of long arms K, K.
35 Means for the control of position of the buoys is not necessary, but is desired for increasing the efficiency of the machine. Therefore, in the example shown, each of the buoys is provided with a rod O which is constructed
40 for swinging and sliding movement, so that

the buoys can be brought to a lowered position as shown by dotted lines at P whereby to leave the machine body above the water level even when it is not in use.

Q is an otter board made of metal or timber and fitted underneath the machine body by means of one central vertical rib R and two side ribs S, S. The central rib R is made hollow to receive a shaft U for transmitting power of the engine C to the propeller T. The otter board is in general arranged parallel to the machine body and is formed to minimize its head resistance to water. In the stern part of the machine, there are two ribs V, V for supporting a horizontal rudder W and a vertical rudder X, the rudders being connected to independent ropes Y and Z, respectively, the latter being controlled in a manner which will be readily understood by those skilled in the art and the former may
70 be controlled simultaneously with auxiliary horizontal rudders W', W' conveniently fitted at the tip of the otter board, by the handle D as will be clearly apparent by reference to Fig. 6.

It is most important with the above described machine to keep the propeller and other board and rudders deep in water when navigating, while supporting the machine body above sea level, so as to minimize the rolling and pitching of the machine due to rough sea. When starting the machine in motion the buoys J are moved to their lowest position shown at P deep in water, that is, in the plane WL until the machine attains
85 an adequate speed and then the buoys are elevated. The machine is thereby allowed to descend nearer to the water surface and accordingly the propeller and the otter board dip deeper in water and thereafter the speed
90 of the machine may be safely increased. The stem is somewhat raised by adjusting the horizontal rudders so that the otter board is utilized to assist in supporting the whole weight of the machine. Thus, the machine is kept
95 above the water level W' L' shown in Fig. 1 and is navigated without being affected by wave motion. In this case, the rolling of the machine, if any, may be minimized by adjusting the auxiliary horizontal rudders at the
100

tip of the otter board, while the main horizontal rudder W will control the horizontal inclination of the machine now in propulsion horizontally, the vertical rudder of course
5 controlling the course of navigation of the machine.

By analogy, the machine according to the present invention resembles a flying machine of which the wings, rudders and propellers
10 are entirely dipped into water so that the body of the machine is kept above the water surface, while keeping the propellers and the rudders sufficiently deep in water to avoid undue pitching and rolling of the machine due
15 to wave motion.

I claim:

In a navigating vessel, a body including lateral wings, downwardly extending vertical ribs on said body and wings, an otter board
20 connected with the ends of the ribs and extending laterally beyond the ends of the wings, vertical and horizontal rudders and a propeller, said rudders being located at the stern of the body, and the propeller being located forwardly thereof, the horizontal rudder being controlled at the body whereby,
25 when navigating, the board, rudders and propeller are maintained sufficiently deep in water while the body is maintained sufficiently high above the water level, and auxiliary horizontal rudders located on the inner side of
30 the otter board on opposite sides of the longitudinal center.

In testimony whereof I affix my signature.
35 GENKICHI YAMANOUCI.

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