July 1, 1924. 1,500,073

H. HASS

DEVICE FOR FAVORABLY GUIDING THE PROPELLER WATER OF SHIPS

Filed May 24, 1923 2 Sheets-Sheet 1

Fig. 1.

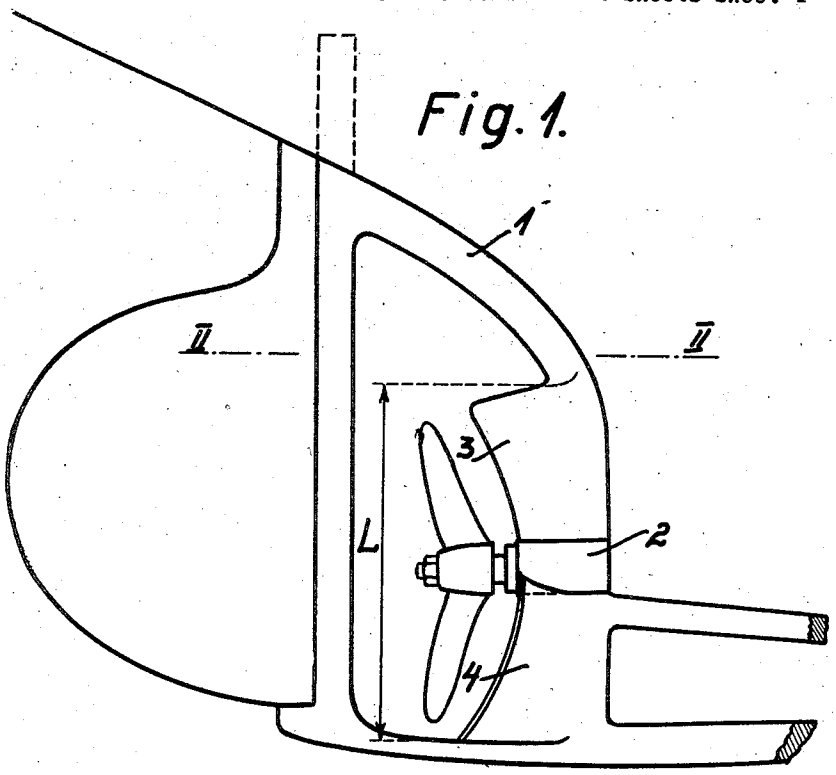
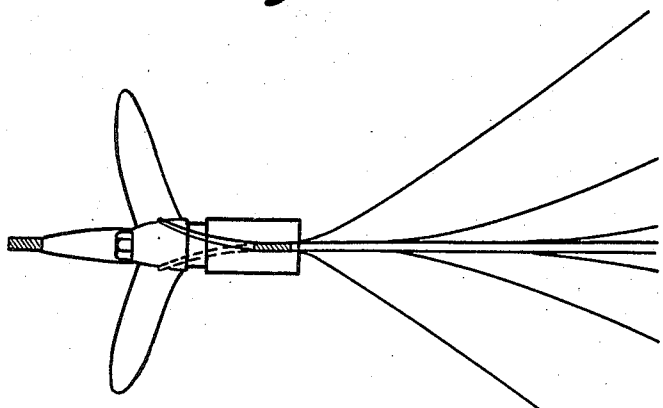


Fig. 2.



Inventor.
H. Hass.
Atty's.
By Marks & Clerk

July 1, 1924. 1,500,073

H. HASS

DEVICE FOR FAVORABLY GUIDING THE PROPELLER WATER OF SHIPS

Filed May 24, 1923 2 Sheets-Sheet 2

Fig.3.

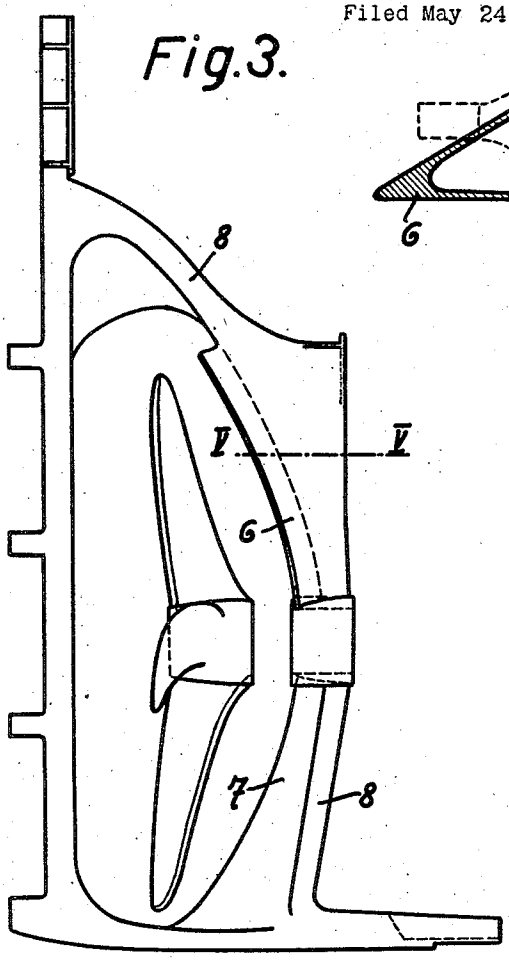


Fig.5.

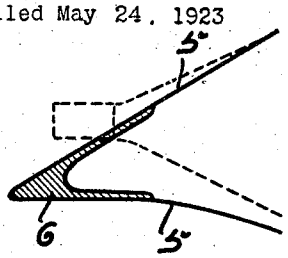


Fig.4.

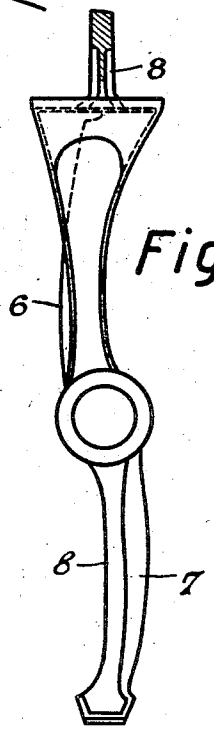


Fig.8.



Fig.6.

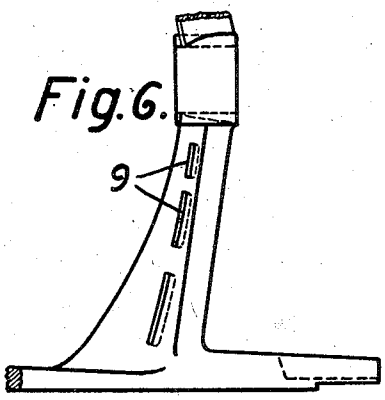
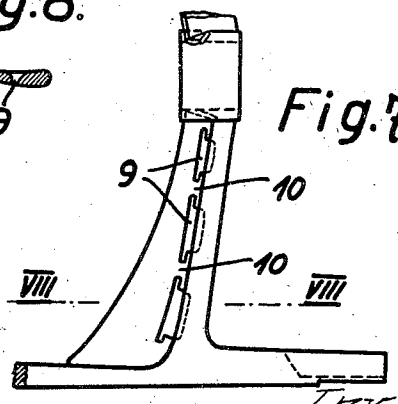


Fig.7.



Inventor.
H. Hass.
Atty's.
By Marks & Clerk

Patented July 1, 1924. 1,500,073

UNITED STATES PATENT OFFICE.

HANS HASS, OF BERGEDORF, NEAR HAMBURG, GERMANY.

DEVICE FOR FAVORABLY GUIDING THE PROPELLER WATER OF SHIPS.

Application filed May 24, 1923. Serial No. 641,206.

To all whom it may concern:

Be it known that I, HANS HASS, a citizen of the German Reich, residing at Bergedorf, near Hamburg, Germany, have invented certain new and useful Improvements in Devices for Favorably Guiding the Propeller Water of Ships (for which an application for patent has been filed in Germany on the 8th of June, 1922), of which the following is a specification.

The stern posts of known type with guiding devices possess the inconvenience that they are of complicated construction and that they comprise parts which project sidewards. The cost of manufacture is therefore comparatively high and there is always the possibility that the laterally projecting parts will come in contact with wharfs, piles or the like, and breakage might result. For these reasons the guiding devices were not adapted for navigation notwithstanding the increase of efficiency of the propeller.

According to this invention the inconveniences are overcome by creating a stern post which comprises no laterally projecting parts so that the stem is of a shape easily to cast, the danger of breakage of a part of the stem being reduced.

The subject of the invention is illustrated, by way of example, on the accompanying drawing, wherein:—

Fig. 1 shows the subject of the invention in side elevation, designed for a tug.

Fig. 2 is a cross section on line II—II of Fig. 1.

Fig. 3 shows in side elevation the subject of the invention designed for a large-sized motor-ship.

Fig. 4 shows the stern frame for the propeller in front elevation.

Fig. 5 is a horizontal cross section on line V—V on enlarged scale.

Fig. 6 shows in side elevation the lower part of the stern frame for the propeller according to a slight modified form of construction.

Fig. 7 is a side elevation of the lower part of a stern frame for the propeller according to another modified form of construction.

Fig. 8 is a horizontal cross section on line VIII—VIII of Fig. 7.

According to this invention on the post 1 of the propeller frame only one guide body 3 is arranged above the shaft or tail shaft bearing 2 and one guide body 4 below the hub. These guide bodies do not project laterally much from the face of the stern frame for the propeller but they are essentially situated within the range of the same and of the ship's body adjacent to said stern frame. Experiments have shown that, notwithstanding the arrangement of only two guide bodies, a considerable increase of the degree of efficiency is produced as the dead waters are influenced in a specially favorable manner. A construction has proved to be specially suitable in which the length L of the guide body is greater than the diameter of the propeller as it becomes possible in this manner to mount the propeller somewhat off the rear edge of the guide body so that, owing to the large interval produced, objects floating on the water, for instance branches of trees, pieces of wood and the like, are not more dangerous than with sterns of usual construction. The action of the guide faces on the propeller is nevertheless preserved.

The dimensions are selected in accordance with the relation of speed of ship to propeller slip and interval between propeller and guide body in order to make the guide body only of accurately the length which corresponds to a maximum degree of efficiency.

In Figs. 3 to 5 an arrangement is shown in which the part 5 of the after portion of the ship which joins the stern post is also utilized for the guiding effect. Also in this case the guide bodies 6 and 7 are made in one piece with the stern frame 8 for the propeller and Fig. 4 shows clearly how the guide faces extend essentially in the range of the stern post proper, as for example, with a left hand propeller or left pitched screw, the guide surface 6 extends above the shaft bearing toward the starboard and guide surface 7 under the shaft bearing toward the larboard, for the purpose of further diverting the water passing along the ship's sides, which is already somewhat diverted by the unilateral construction of the ship's hull, and for passing it with this degree of diversion into the propeller.

In order to increase the degree of efficiency of the guide bodies slit-like passages 9 are provided at the root of the guide bodies according to the form of construction shown in Figs. 6 and 7, said passages permitting a determined quantity of water

to flow from the pressure side of the guide bodies to the suction side of the same so that the detrimental formation of eddies on the suction side is considerably reduced.

The slit-like passages present the great advantage that the guide bodies may be much more curved and can consequently exert a greater influence upon the propeller, whereby the possibility is given to make the guide bodies of smaller width than otherwise so that in this manner it becomes possible to mount the guide bodies in an existing propeller well of given dimensions.

In the form of construction shown in Fig. 7 the guide bodies are not made in one piece with the stern frame for the propeller but are mounted on the same. The slits are made so that the guide members are attached to the stern by means of special feet 10 and the intermediate spaces between these feet form the slits for the pressure equalization of the water.

The construction of the guide bodies has proved to be specially suitable when the product of the velocity of rotation imparted to the water by the guide faces (component in the propeller plane) into the radius of the several points on the guide body is maintained constant over the entire length of the guide bodies.

I claim:—

1. A device for favorably guiding the water into the propeller of single screw ships comprising in combination a stern post, a shaft bearing in the same, a single guiding member above the shaft bearing and a single guiding member below the shaft bearing, both of these guiding members being arranged in front of the propeller and being the only guiding members associated with the propeller, said members being curved inversely to the direction of rotation of the propeller and extending laterally essentially within the range of the stern post.

2. A device for favorably guiding the water into the propeller of single screw ships comprising in combination a stern post, a shaft bearing in the same, one single guiding member only above the shaft member and one single guiding member only below the shaft member, these guiding members being arranged in front of the propeller and being curved inversely to the direction of rotation of the latter and also being combined with the stern post and extending laterally essentially within the range of the same.

3. A device as claimed in claim 1 in which each of said guiding members is substantially vertically arranged and in which the central lines of the water line sections project from the central plane of the ship oppositely to the direction of rotation of the propeller, each of said guiding members being provided with slits extending from the pressure to the suction side of the same.

4. A device as claimed in claim 1 in which said guiding members are perpendicularly arranged and in which the central lines of the water line sections project from the central plane of the ship oppositely to the direction of rotation of the propeller, said members having slits leading in oblique direction from the pressure side to the suction side of the members.

5. A device as claimed in claim 1 in which said guiding members consist of a perpendicular body, and in which the central lines of the water line sections project from the central plane of the ship oppositely to the direction of rotation of the propeller, said body having slits leading from the pressure side to the suction side of the body and the portions of the body between said slits forming feet for fixing the body on the stern post.

6. In combination, a ship provided with a stern post having a shaft bearing, a shaft in said bearing, a propeller on the shaft arranged rearwardly of the bearing, two guiding members only associated with said bearing, arranged in front of the propeller and one extending upwardly from the bearing and the other extending downwardly from the bearing, and each of said guiding members being curved inversely to the direction of rotation of the propeller, being combined with the stern post and extending laterally essentially within the range of the same.

In testimony whereof I affix my signature in presence of two witnesses.

HANS HASS.

Witnesses:
A. KASPAUH,
H. DEICKE.