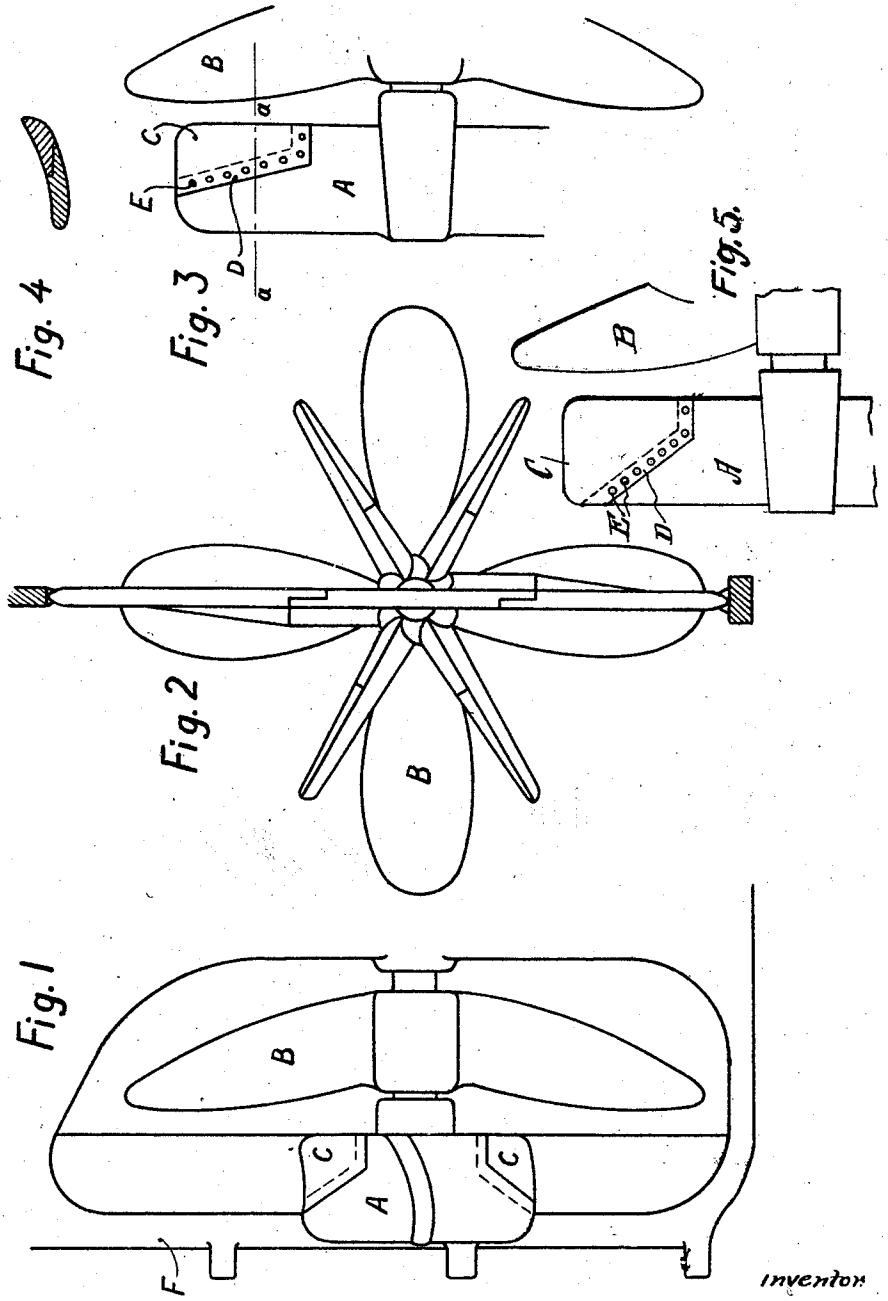
Dec. 14, 1926. 1,610,678

J. B. HIORTH

GUIDE APPARATUS FOR PROPELLERS

Filed August 18, 1924



Inventor

Jens Br. Hiorth,

By Watson, Coit, Morse & Grindle.

Attys.

Patented Dec. 14, 1926. 1,610,678

UNITED STATES PATENT OFFICE.

JENS BR. HIORTH, OF HOVIK, NEAR CHRISTIANIA, NORWAY.

GUIDE APPARATUS FOR PROPELLERS.

Application filed August 18, 1924, Serial No. 732,874, and in Norway August 16, 1923.

In vessels with guide apparatus before or aft the main propellers the blades or vanes of the guide apparatus should be made somewhat weaker than the main propeller so that in the event of a breakage which may take place for example if a piece of timber or another solid article is jammed between one of the vanes of the guide apparatus and one of the propeller blades the vanes of the guide apparatus should break and the main propeller remain undamaged and the speed and maneuver capacities of the vessel consequently be reduced to a comparatively smaller extent. Furthermore the replacing of the guide apparatus or a part of same always will be simpler and cheaper than the replacing of the main propeller or one of its blades.

It sometimes has been arranged to make certain parts of the guide apparatus replaceable, by screwing or in other manner securing them by means of flanges. With the arrangements as used up to now the replaceable parts have, however, been comparatively comprehensive and for larger apparatus their weight has been large and their replacing therefore difficult and expensive.

The present invention relates to arrangements by means of which the parts of the guide apparatus, which have to be replaced in the event of a breakage, may be made simpler and considerably reduced in weight by making the most exposed parts of the blades or vanes of the guide apparatus, i. e. the parts adjacent to the main propeller and even the whole or part of their ends replaceable and preferably by making these parts or their connection with the guide apparatus so weak that an eventual breakage will fall upon same. The main part of the guide apparatus and the replaceable parts also may be made of material of different strength, for instance, for ships, of cast steel and cast iron respectively and for flying machines of wood of different strengths.

The replaceable parts may extend over a larger or smaller part of the length of the blade and may be differently shaped. A preferred form is shown in the attached drawing where Fig. 1 is a side view of the sternpost of a vessel with propeller and guide apparatus arranged abaft same, Fig. 2 is a view of same looking forward and Fig. 3 the propeller and guide apparatus shown at right angles to Fig. 2. Fig. 4 is a section of a guide vane of the apparatus on the line *a—a* in Fig. 3. Fig. 5 is a view similar to Fig. 3 but showing a somewhat modified form of the replaceable part.

A is the vane and C its replaceable part, which is secured to the vane A by means of the flange D and screws or rivets E. B is the main propeller and F the rudder post. The connection between the replaceable part and the vane, of course, also may be made by welding instead of as shown by screws or rivets.

In the shown example the line of connection between the vane and the replaceable part is a straight line which extends to the outer end of the vane. By this form the fixed part of the vane remains unbroken over its whole length whereby the full strength is maintained against bending strain, which may occur especially for ships when pitching in heavy sea. The connection line may, however, be formed ad libitum and may, for example, be given a more inclined position or be bent so that the whole end of the vane is included in the replaceable part as shown in Fig. 5.

Claims.

1. A guide apparatus for propellers including in combination, vanes supported from the hull of the ship in proximity to the propeller, said vanes having replaceable parts on their edges which face the propeller.

2. A guide apparatus for propellers including in combination, vanes supported from the hull of the ship in proximity to the propeller, said vanes having frangible replaceable parts on their edges which face the propeller.

3. A guide apparatus for ship propellers including in combination, vanes supported from the hull and radiating from a center lying in the axis of the propeller, replaceable tips on said vanes on the sides thereof facing the propeller, the joint between said vanes and tips being of such construction as to break before the propeller blades in case an obstruction comes between the vanes and blades.

4. A guide apparatus for ship propellers including in combination, vanes supported from the hull of the ship in proximity to the propeller, said vanes having frangible replaceable parts on their edges which face the propeller, said frangible and replaceable parts including the complete outside ends of the vanes.

In testimony whereof I have signed my name to this specification.

JENS BR. HIORTH.