efficiency, a better workability, and less weight than a ship propulsion device using a propeller boss cap equipped with prior-art fin and a ship provided with the ship propulsion device.

MEANS FOR SOLVING THE PROBLEM

[0010]

According to a first aspect of the present invention, there is provided a ship propulsion device in which a fin is provided on a propeller boss cap mounted on a rear side of a propeller boss of a screw propeller, wherein: a front edge of the fin is at the same position as a rear edge of a root of a propeller blade or behind the rear edge in the propeller front-rear direction, the front edge of the fin is provided at a position of a space between the roots of adjacent propeller blades, a rear end portion of the propeller boss cap is formed as a flat surface, or the rear end portion of the propeller boss cap is formed as a nearly-flat circular cone or rotor, the entire length of the propeller boss cap is set to be 0.28 to 0.76 times as large as a diameter of a cap front end portion of the propeller boss cap, and a diameter of the cap rear end portion of the propeller boss cap is set to be 0.35 to 0.95 times as large as the diameter of the cap front end portion.

~~In a ship propulsion device to achieve the above object, according to a ship propulsion device in which a fin is provided to a propeller boss cap mounted on a rear side of a propeller boss of a screw propeller and the fin is disposed between but behind propeller blades, a rear end portion of the propeller boss cap is formed as a flat surface, or the rear end portion of the propeller boss cap is formed into such a shape as to extend from a periphery thereof by a distance not greater than 20% of an entire length of the propeller boss cap, the entire length of the propeller boss cap is set to be 0.28 to 0.76 times as~~

~~large as a diameter of a cap front end portion, and a diameter of the cap rear end portion of the propeller boss cap is set to be 0.35 to 0.95 times as large as the diameter of the cap front end portion.~~

[0011]

The propulsion efficiency of the propeller is good when the entire length of the propeller boss cap is 0.28 to 0.76 times, preferably 0.34 to 0.68 times, and most preferably 0.50 times as large as the diameter of the cap front end portion, and also when the diameter of the cap rear end portion is 0.35 to 0.95 times, preferably 0.42 to 0.85 times, and most preferably 0.65 times as large as the diameter of the cap front end portion. Using this configuration, the cap main body of the propeller boss cap can be formed into an optimum shape, whereby the

propeller efficiency can be improved. In addition, since the rear end portion of the propeller boss cap is formed as a flat surface, the workability of the propeller boss cap can be improved. Moreover, since the rotor tapering toward its rear end has no pointed tip, weight reduction can be achieved accordingly.

[0012]

~~In the ship propulsion device to achieve the above object, according to the ship propulsion device in which a fin is provided to a portion, on a propeller boss of a screw propeller, which is behind each of propeller blades and the fin is disposed between but behind the propeller blades, a rear end portion of the propeller boss cap is formed as a flat surface, or the rear end portion of the propeller boss cap is formed into such a shape as to extend from a periphery thereof by a distance not greater than 20% of an entire length of the propeller boss cap, a distance from a front end of a root of the fin to a rear end of the root of the fin is set to be 0.28 to 0.76 times as large as the diameter of the propeller boss at a position of the rear end of each of the propeller blades, and a diameter behind the root of the fin is set to be 0.35 to 0.95 times as large as the diameter of the propeller boss at the position of the rear end of each of the propeller blades.~~ According to a second aspect of the present invention, there is provided a ship propulsion device in which a fin is provided on a portion of a propeller boss of a screw propeller, the portion being behind each of the propeller blades of the screw propeller, wherein: a front edge of the fin is at the same position as a rear edge of a root of a propeller blade or behind the rear edge in the propeller front-rear direction, the front edge of the fin is provided at a position of a space

between the roots of adjacent propeller blades, a rear end portion of a propeller boss cap attached to the propeller boss is formed as a flat surface, or the rear end portion of the propeller boss cap is formed as a nearly-flat circular cone or rotor, a distance from a front end of a root of the fin to a rear end of the root of the fin is set to be 0.28 to 0.76 times as large as the diameter of the propeller boss at a position of the rear end of each of the propeller blades, and a diameter of the propeller boss behind the root of the fin is set to be 0.35 to 0.95 times as large as the diameter of the propeller boss at the position of the rear end of each of the propeller blades. This configuration enables obtaining the same effects as described above.

[0013]

In addition, according to the ship propulsion device, the propeller boss cap is formed as a rotor using a rotation axis of the propeller as its rotation axis, and each generating line of the rotor is a linear line so that the propeller boss cap is formed into a shape of a circular truncated cone. Using this

CLAIMS

[Claim 1]

A ship propulsion device in which a fin is provided to a propeller boss cap mounted on a rear side of a propeller boss of a screw propeller and the fin is disposed between but behind propeller blades, characterized in that

a rear end portion of the propeller boss cap is formed as a flat surface, or the rear end portion of the propeller boss cap is formed into such a shape as to extend from a periphery thereof by a distance not greater than 20% of an entire length of the propeller boss cap,

the entire length of the propeller boss cap is set to be 0.28 to 0.76 times as large as a diameter of a cap front end portion of the propeller boss cap, and

a diameter of the cap rear end portion of the propeller boss cap is set to be 0.35 to 0.95 times as large as the diameter of the cap front end portion.

[Claim 2]

A ship propulsion device in which a fin is provided to a portion, on a propeller boss of a screw propeller, which is behind each of propeller blades and the fin is disposed between but behind the propeller blades, characterized in that

a rear end portion of the propeller boss cap is formed as a flat surface, or the rear end portion of the propeller boss cap is formed into such a shape as to extend from a periphery thereof by a distance not greater than 20% of an entire length of the propeller boss cap,

a distance from a front end of a root of the fin to a rear end of the root of the fin is set to be 0.28 to 0.76 times as large as the diameter of the propeller boss at a position of

the rear end of each of the propeller blades, and

a diameter behind the root of the fin is set to be 0.85 to 0.95 times as large as the diameter of the propeller boss at the position of the rear end of each of the propeller blades.

[Claim 3]

The ship propulsion device according to claim 1, characterized in that

the propeller boss cap is formed as a rotor using a rotation axis of the propeller as its rotation axis, and

each generating line of the rotor is a linear line so that the propeller boss cap is formed into a shape of a circular truncated cone.

[Claim 4]

A ship characterized by comprising the ship propulsion device according to any one of claims 1, 2, and 3.

CLAIMS

1. A ship propulsion device in which a fin is provided on a propeller boss cap mounted on a rear side of a propeller boss of a screw propeller, wherein:

a front edge of the fin is at the same position as a rear edge of a root of a propeller blade or behind the rear edge in the propeller front-rear direction,

the front edge of the fin is provided at a position of a space between the roots of adjacent propeller blades,

a rear end portion of the propeller boss cap is formed as a flat surface, or the rear end portion of the propeller boss cap is formed as a nearly-flat circular cone or rotor,

the entire length of the propeller boss cap is set to be 0.28 to 0.76 times as large as a diameter of a cap front end portion of the propeller boss cap, and

a diameter of the cap rear end portion of the propeller boss cap is set to be 0.35 to 0.95 times as large as the diameter of the cap front end portion.

2. A ship propulsion device in which a fin is provided on a portion of a propeller boss of a screw propeller, the portion being behind each of the propeller blades of the screw propeller, wherein:

a front edge of the fin is at the same position as a rear edge of a root of a propeller blade or behind the rear edge in the propeller front-rear direction,

the front edge of the fin is provided at a position of a space between the roots of adjacent propeller blades,

a rear end portion of a propeller boss cap attached to

the propeller boss is formed as a flat surface, or the rear end portion of the propeller boss cap is formed as a nearly-flat circular cone or rotor,

a distance from a front end of a root of the fin to a rear end of the root of the fin is set to be 0.28 to 0.76 times as large as the diameter of the propeller boss at a position of the rear end of each of the propeller blades, and

a diameter of the propeller boss behind the root of the fin is set to be 0.35 to 0.95 times as large as the diameter of the propeller boss at the position of the rear end of each of the propeller blades.

3. The ship propulsion device according to claim 1, characterized in that

the propeller boss cap is formed as a rotor using a rotation axis of the propeller as its rotation axis, and

each generating line of the rotor is a linear line so that the propeller boss cap is formed into a shape of a circular truncated cone.

4. A ship characterized by comprising the ship propulsion device according to any one of claims 1, 2, and 3.