May 10, 1932. J. H PILET 1,857,327

PROPELLER

Filed Aug. 3, 1929

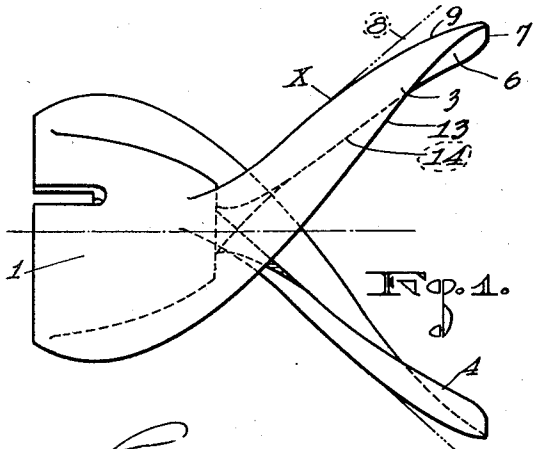


Fig. 1.

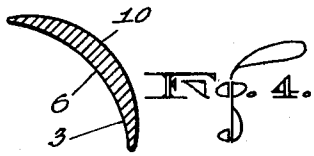


Fig. 4.

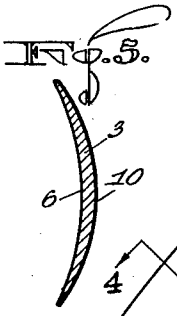


Fig. 5.

Fig. 2.

Fig. 6.

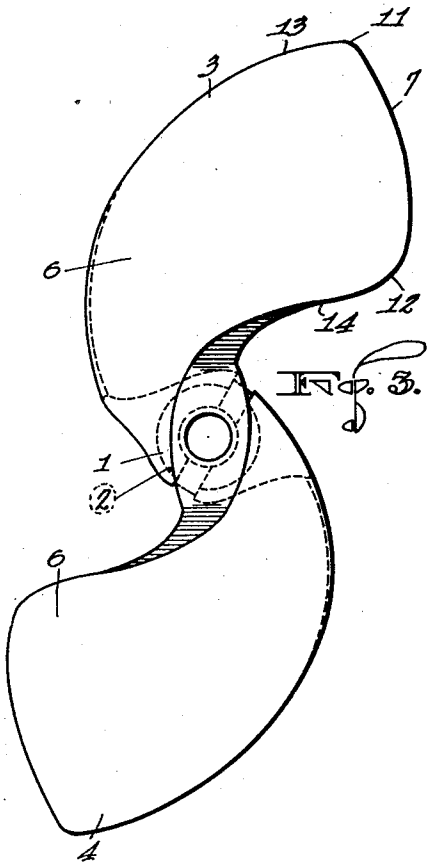


Fig. 3.

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UNITED STATES PATENT OFFICE

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PROPELLER

Application filed August 3, 1929. Serial No. 383,246.

My invention relates to improvements in propellers, and it consists in the combinations, constructions and arrangements hereinafter described and claimed.

An object of my invention is to provide a propeller that may consist of two or more blades, these blades having a greater pitch than the usual propeller, and the ends of the blades are turned inwardly with respect to the blade lengths for presenting spoons adapted for gripping fluid as the propeller is revolved. I have found that this spoon type of blade will hold the water to a greater extent and will prevent slippage. This results in a blade which will give greater power when turning at a less number of R. P. M. than a standard blade.

I have also found that a blade slightly concave, the concave portion gradually diminishing as the tip of the blade is reached, will give a greater propelling force than will a blade not so designed.

A further object of my invention is to provide a device of the type described which is extremely simple in construction and which is durable and efficient for the purpose intended.

Other objects and advantages will appear as the specification proceeds, and the novel features of the device will be particularly pointed out in the claims hereto attached.

My invention is illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the device,

Figure 2 is a view similar to Figure 1 except that the propeller has been rotated through ninety degrees,

Figure 3 is a rear elevation, and

Figures 4, 5 and 6 are sections along the lines 4—4, 5—5 and 6—6 of Figure 2.

In carrying out my invention, I provide a propeller having a hub portion 1 that is provided with a bore 2 for receiving a drive shaft. I show the propeller as being provided with two blades 3 and 4, each being identical with the other. A description of one will therefore suffice for both. It is obvious that more than two blades may be used without departing from the spirit and scope of my invention.

Figure 2 shows the blade 3 as extending away from the axis 5 of the propeller at approximately an angle of forty-five degrees. The blade has a concave face 6. The curvature of the face varies from a position nearest the hub to one near the tip of the blade. Figure 4 shows the face 6 as being hollowed out. The section shown in Figure 4 is taken near the hub 1 as shown by the section line 4—4 in Figure 2. The concave surface is less pronounced nearer the tip 7 of the blade 3 as shown by the section in Figure 5. At the same time, the blade is considerably wider nearer the tip than it is at the points near the hub. This gradual diminishing of the concavity of the surface 6 makes the blade spoon-shaped. It is the spoon-shaping of the blade which gives it the greater driving force.

Figure 1 clearly shows how each blade is shaped somewhat like a spoon. The blade follows the straight line 8 shown in Figure 1 through substantially one-half of the blade length. From the point X on to the end of the blade, I provide a slight curve indicated at 9. This curve extends away from the line 8. This curve is similar to the curve of the end of a spoon.

Of course, the face of the blade opposite the face 6 is convex as shown in Figure 4 by the numeral 10. Figures 2 and 3 show how the tips 7 of the blades 3 and 4 have slightly curved ends 11 and 12, the curve 11 merging into the curved edge 13 of the blade, while the curve 12 merges into the curved edge 14. The outer edge 13 is slightly curved as shown in Figure 2, while the edge 14 is more abruptly curved. It will be noted from Figure 3 that the entire lengths of the blades are curved in a clockwise direction through a small angle when looking at the rear of the propeller.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

The direction of revolution of the propeller when viewed from the rear of the latter (see Figure 3) is counterclockwise.

During the operation of the propeller, the water is held against the concave faces 6

(see Figure 3) and is kept against the faces throughout the entire contacting of the propeller with the water. The spoon shape of each blade prevents a waste of power. The gradual inwardly turning of the blade tips gives the blade the shape of a spoon. The greater curve in the face of the blade near the hub and the gradual diminishing of this curve to the tip of the blade provides a propeller that has a greater force. The propeller has less vibration and slippage due to its particular construction. This results, of course, in a less consumption of power which is shown in the saving of fuel. The propeller acts in much the same manner as a screw as it forces its way through the water. The propeller also keeps the boat going forward in a steady course and causes the boat to ride the water better without drawing any mound of water at the rear of the boat.

Although I have shown and described one embodiment of my invention, it is to be understood that the same is susceptible of various changes, as may come within the scope of the invention as claimed without departing from the spirit thereof.

I claim:

1. A propeller having rearwardly extending blades fashioned with concave leading and convex trailing faces in transverse section, these curved faces becoming less pronounced toward the tips of the blades, and the end portions of the blades turned inwardly with respect to the blade lengths for presenting spoons adapted for gripping fluid as the propeller is revolved.

2. A propeller comprising a hub, and blades extending rearwardly therefrom in diverging relation with each other, the leading faces of the blades being fashioned concave in transverse section and gradually flattening toward the outer blade ends, and formed with inwardly turned tips with respect to the blade lengths presenting spoons adapted for gripping fluid as the propeller is revolved, said blades, when viewed from the rear of the propeller, being gradually curved with the inner edge of the tips turned through substantially one-eighth of a circle.

JOHN H. PILET.