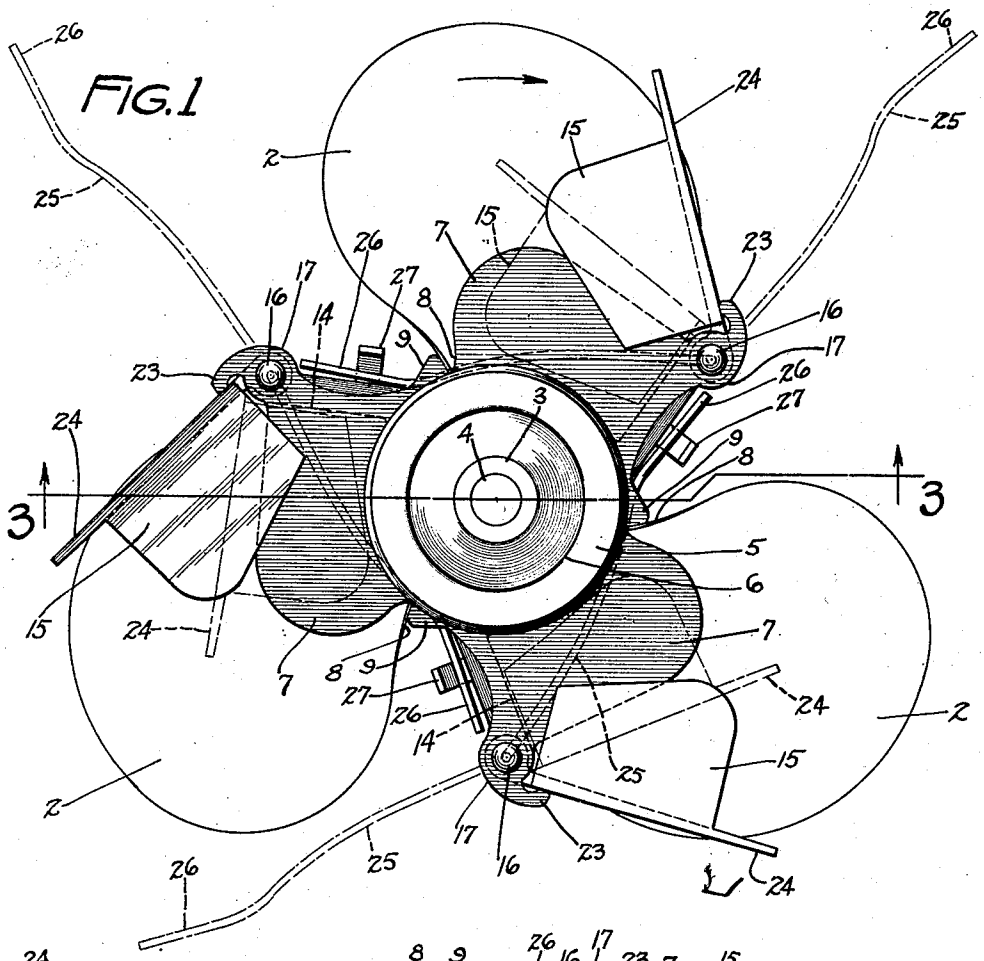
May 6, 1930. W. H. WENDT 1,757,761

PROPELLER ATTACHMENT

Filed Sept. 17, 1928 2 Sheets-Sheet 1

FIG. 1



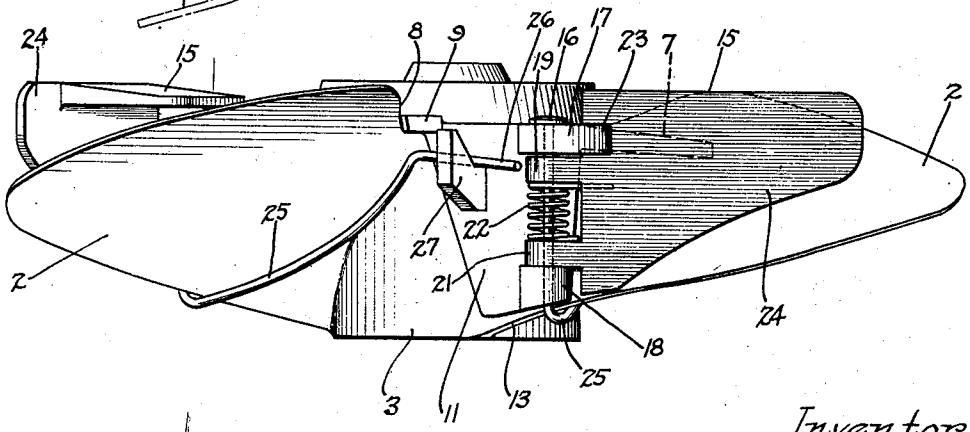


FIG. 2

Inventor
WILLIAM H. WENDT
By Parker, Parker & Wood
ATTORNEYS

May 6, 1930. W. H. WENDT 1,757,761

PROPELLER ATTACHMENT

Filed Sept. 17, 1928 2 Sheets-Sheet 2

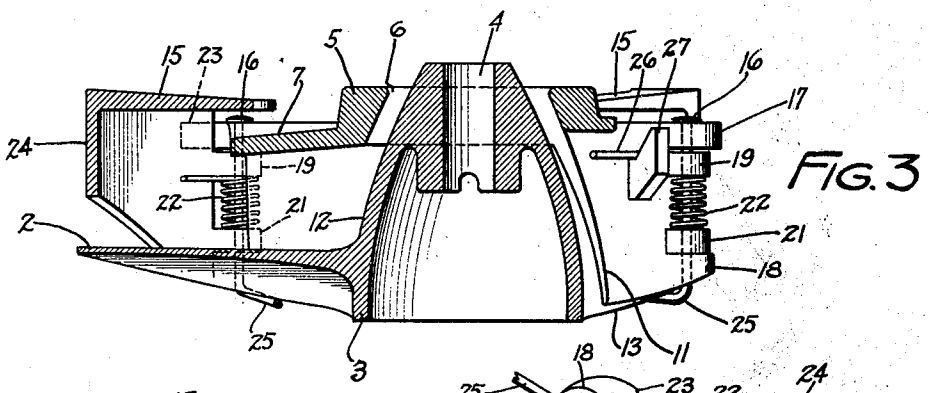


FIG. 3

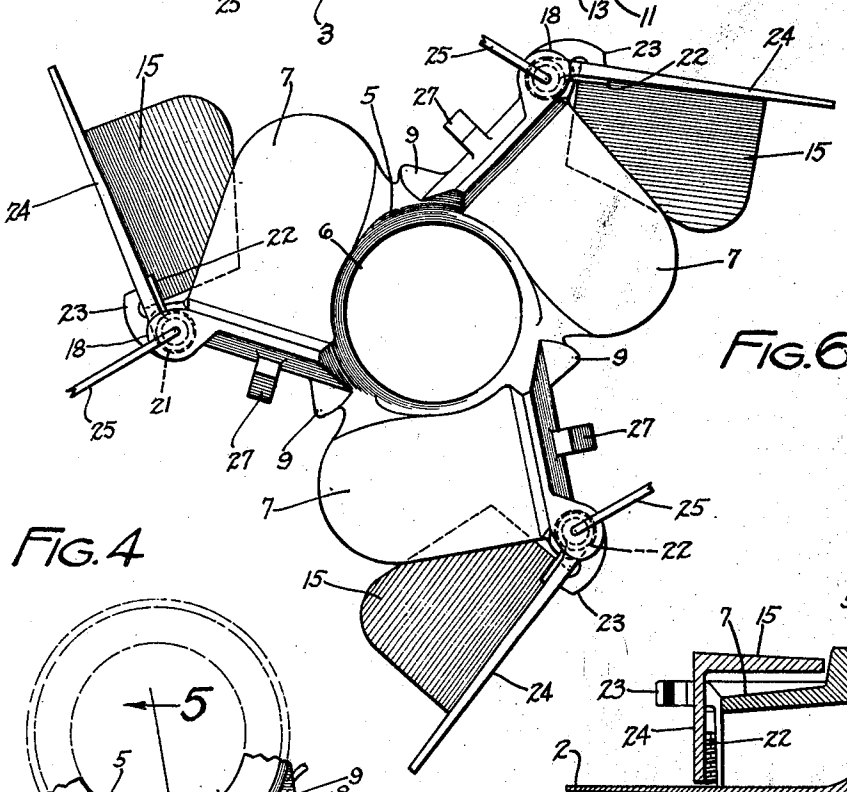
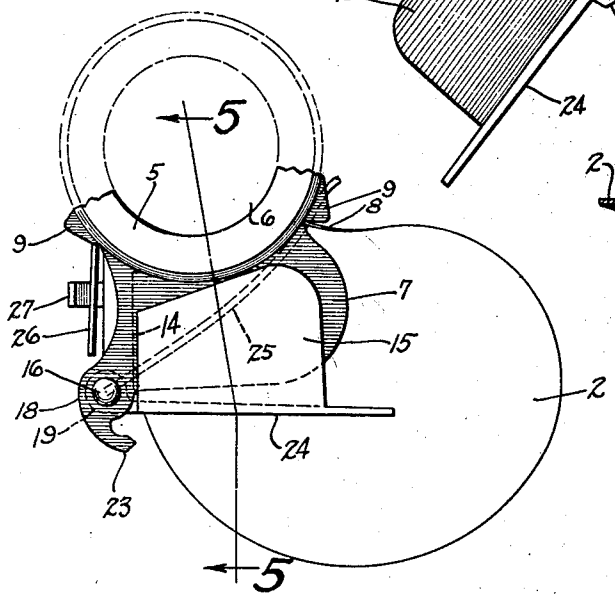


FIG. 6

FIG. 4



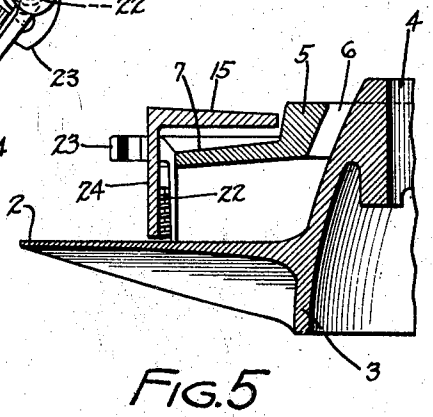


FIG. 5

Inventor
WILLIAM H. WENDT
By Parker, Parker & Moore
ATTORNEYS

Patented May 6, 1930 1,757,761

UNITED STATES PATENT OFFICE

WILLIAM H. WENDT, OF LITTLE FALLS, MINNESOTA

PROPELLER ATTACHMENT

Application filed September 17, 1928. Serial No. 306,388.

This invention relates to an improved device adapted to be attached to a propeller to lessen the effective surface area of the propeller blades for the purpose of reducing the speed of a boat or vessel.

The primary object of my invention is to provide means in connection with the blades of a propeller for automatically increasing or decreasing the effective surface area of said blades proportionately with their speed of revolution. The device is designed as an improvement over the propeller attachment shown and described in my application #189,589, filed May 7, 1927, wherein manual adjustment of the attachment for the blades is necessary. In my present invention the action of the attachment is entirely automatic, being controlled by the speed of revolution of the propeller.

An object of the invention is to provide a propeller attachment comprising a frame adapted to be fitted against the propeller and having means for securing it thereto, and a plurality of wing members movably mounted upon said frame and adapted normally to conceal a portion of a propeller blade, whereby the effective surface area of each propeller blade is lessened, thereby reducing its propelling power.

A further object is to provide a propeller attachment comprising a frame adapted to be concentrically mounted upon a propeller and having portions overlying the blades of the propeller, and a plurality of wing members pivotally mounted upon said frame and each co-operating with said frame to conceal normally a portion of the effective surface area of the propeller blades.

A further object is to provide a propeller attachment having a plurality of wing members pivotally mounted thereon and each adapted to overlie a portion of a propeller blade, said wing members normally being retained in operative positions to conceal a portion of the propeller blades, and the wing members also being adapted to be automatically moved to inoperative positions, when the speed of the propeller in increased, the action or pressure of the water against said wing members causing them to be moved inwardly, whereby the effective surface area of the propeller blades is increased, the wing members automatically returning to their operative positions, when the speed of the propeller is reduced.

Other objects of the invention will appear from the following description and accompanying drawings and will be pointed out in the annexed claims.

In the accompanying drawings, there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the accompanying drawings forming part of this specification:

Figure 1 is a plan view of a propeller having three blades and showing the attachment mounted thereon, the full lines showing the wing members in normal positions, and the dotted lines indicating the positions of the wing members when in less effective positions;

Figure 2 is a side elevation of Figure 1;

Figure 3 is a detail sectional view on the line 3—3 of Figure 1;

Figure 4 is a fragmentary view, showing one of the blades of the propeller, and also showing in full lines the position of the wing member when in abnormal position;

Figure 5 is a detail sectional view on the line 5—5 of Figure 4; and

Figure 6 is a rear view of the attachment.

In the selected embodiment of the invention here shown, there is illustrated, for purposes of disclosure, a propeller comprising blades 2, here shown as being integrally formed with a hub 3, having a central aperture 4 for securing it to the usual drive shaft, not shown.

The attachment comprises a frame 5, having a central aperture 6 adapted to receive the tapered end of the hub 3, as shown in Figures 3 and 5. Plates 7 are provided upon the frame 5 and each is adapted to overlie one of the propeller blades 2 to partially conceal a portion of its effective propelling surface. The plates 7 are formed and constructed to

engage the rear edges 8 of the propeller blades, and a lug or detent 9 is also adapted to engage the rear edge 8 of each propeller blade to prevent relative rotation of the attachment upon the propeller.

Each plate 7 has a right-angled wall 11, one edge of which substantially engages the curved surface 12 of the hub 3, and having its lower edge substantially engaging the leading edge 13 of its complementary propeller blade, as shown in Figure 2. The walls 11 prevent the water from engaging the surfaces of the propeller blades adjacent to the hub 3, as will be noted by the dotted lines 14, indicated in Figures 1 and 4.

Each plate 7 has a wing member 15 pivotally mounted thereon by means of a pivot pin 16, which traverses lugs 17 and 18, provided upon the wall 11, and lugs 19 and 21 provided upon the wing member 15. A torsion spring 22 is coiled about each pivot pin 16, preferably between the lugs 19 and 21, and each has one end secured to its complementary wing member and its other end to its complementary wall 11, as shown in Figure 2. These springs are so arranged as to constantly urge the wing members 15 outwardly to the full line positions shown in Figure 1. A stop 23 is provided on each lug 17 to limit outward movement of the wing members 15, as shown in Figure 1.

Each wing member 15 has a flange 24 integrally formed preferably therewith and to which the lugs 19 and 21 are secured, as shown in Figure 2. The surfaces of these flanges are exposed to the action or pressure of the water, when the propeller is rotated in the direction indicated by the arrow in Figure 1, and the torsion springs 22 retain the wings 15 in the full line positions, shown in Figure 1, when the propeller is rotated at a moderately slow rate of speed. When the speed of the propeller is increased, the pressure of the water against the flanges 24 will cause the blades to swing inwardly to the dotted line positions, shown in Figure 1, thereby increasing the effective surface area of the propeller blades, with the result that the speed of the vessel will be increased. The action of the wings 15, therefore is automatic for when the propeller is rotated at a certain speed, the wings will assume the full line position shown in Figure 1, and when rotated at a relatively higher speed, they will automatically assume the positions shown in dotted lines in the same figure.

From the foregoing description it will be noted that the wings will normally be held at the limit of their outward movement by the tension of the yielding means and conceal a portion of the effective area of the propeller blades, and, as the speed of revolution of the blades is increased, the wings will swing inwardly against the tension of their yielding means, and expose an increasingly larger area of the blades to the action of the water, such inward travel of the wings being proportionate to the speed of revolution of the blades.

The attachment may be conveniently attached to the propeller by means of wires 25, integrally formed preferably with the pivot pins 16. The terminal 26 of each wire 25 is adapted to engage a lug or hook 27, provided upon each wall 11. These hooks 27 are so located upon the walls 11 that the wires 25 must be flexed to be engaged therewith, as shown in Figures 1 and 2, thereby securely retaining the attachment upon the propeller. By thus supporting the attachment upon the propeller, it may be quickly detached therefrom by simply disengaging the terminals 26 from the hooks 27, and swinging them outwardly to the dotted line positions shown in Figure 1. No bolts or screws are required for securing the attachment to the propeller. In the drawings, I have shown the attachment adapted for use on a propeller having three blades but, obviously, it may be modified so as to adapt it for propellers having two or four blades.

I claim as my invention:

1. The combination with a propeller having relatively immovable blades, of a frame having means for demountably securing it to said blades, a plurality of wing members pivotally mounted upon said frame and each normally positioned to conceal a portion of the effective surface of a propeller blade to lessen the propelling effect of the propeller in the water, and means for yieldably retaining said wing members in normal operative positions.

2. The combination with a propeller having a hub and a plurality of blades, of a frame demountably supported on said hub and blades, wing members pivotally mounted upon said frame and each adapted to conceal a portion of the effective surface area of a propeller blade, means for limiting outward movement of said wing members, and tension means for normally retaining said wing members in normal retracted positions, to reduce the effective area of the propeller blades, when traveling within a certain speed, said tension means permitting automatic adjustment of said wing members to increase the effective surface area of said propeller blades, when the speed of the propeller is increased beyond a certain speed.

3. The combination with a propoller having a hub and a plurality of blades, of a frame adapted to be detachably secured to said propeller and having a central opening adapted to receive said hub, spaced walls on said frame each shaped to conform to the periphery of the hub and each having a portion adapted to engage a surface of one of the propeller blades, a plurality of wing members pivotally mounted on said frame, and means normally retaining said wing members in position to conceal portions of the effective

surface areas of the propeller blades, when rotating within a certain speed, whereby the speed of the boat is decreased, and said means being adapted to yield upon increased rotation of the propeller and thereby increase the effective surface areas of said blades, whereby the speed of the boat is increased.

4. An attachment for a propeller, comprising a frame adapted to be supported on the propeller and provided with means for fastening it thereto, and a plurality of members mounted on said frame and adapted normally to conceal portions of the effective surface areas of the propeller blades, and adapted, upon increased rotation of the propeller, to relatively adjust their positions to increase the effective surface areas of the propeller blades.

5. An attachment for a propeller, comprising a frame having an aperture adapted to receive the hub of the propeller, means for fastening said frame to the propeller, and a plurality of members mounted on said frame and adapted normally to conceal portions of the effective surface areas of the propeller blades, and adapted, upon increased rotation of the propeller, to relatively adjust their positions to increase the effective surface areas of the propeller blades.

6. An attachment for a boat propeller, comprising a frame having means adapted to engage the hub of the propeller, means for fastening said frame to the propeller, wings movably mounted on said frame, means adapted to normally retain said wings in retracted positions to conceal effective areas of the propeller blades, said retaining means being adapted to yield, upon increased rotation of the propeller, to allow the wings to relatively move and increase the effective surface areas of the propeller blades.

7. An attachment for a boat propeller, comprising a frame having means adapted to receive the hub of the propeller, means for fastening said frame to the propeller, wings pivotally mounted on said frame, means adapted to normally retain said wings in retracted positions to conceal effective areas of the propeller blades, said retaining means being adapted to yield, upon increased rotation of the propeller, to allow the wings to relatively move and increase the effective surface areas of the propeller blades, and means for limiting outward movement of said wings.

8. An attachment for a boat propeller, comprising a frame adapted to be detachably mounted upon the propeller and provided with means for fastening it thereto, wings pivotally mounted on said frame, spring elements normally retaining said wings in retracted positions to conceal effective areas of the propeller blades, said spring elements being adapted to yield, upon increased rotation of the propeller, to allow the wings to relatively move and increase the effective surface areas of the propeller blades, each of said wings having a surface disposed at substantially right angles to the plane of the propeller blades, whereby the pressure of the water thereagainst constantly tends to return said wings to their normal retracted positions.

9. An attachment for a boat propeller, comprising a frame having means adapted to receive the hub of the propeller, wings pivotally mounted upon said frame, means adapted to normally retain said wings in retracted positions to conceal effective areas of the propeller blades, said retaining means being adapted to yield, upon increased rotation of the propeller, to allow the wings to relatively move and increase the effective surface areas of the propeller blades, lugs on said frame, and a plurality of spring members pivotally mounted on said frame and each adapted to engage one of said lugs, said spring members being adapted to partially encircle the propeller blades to detachably secure the attachment to the propeller.

In witness whereof, I have hereunto set my hand this 14th day of September, 1928.

WILLIAM H. WENDT.