

No. 891,728.

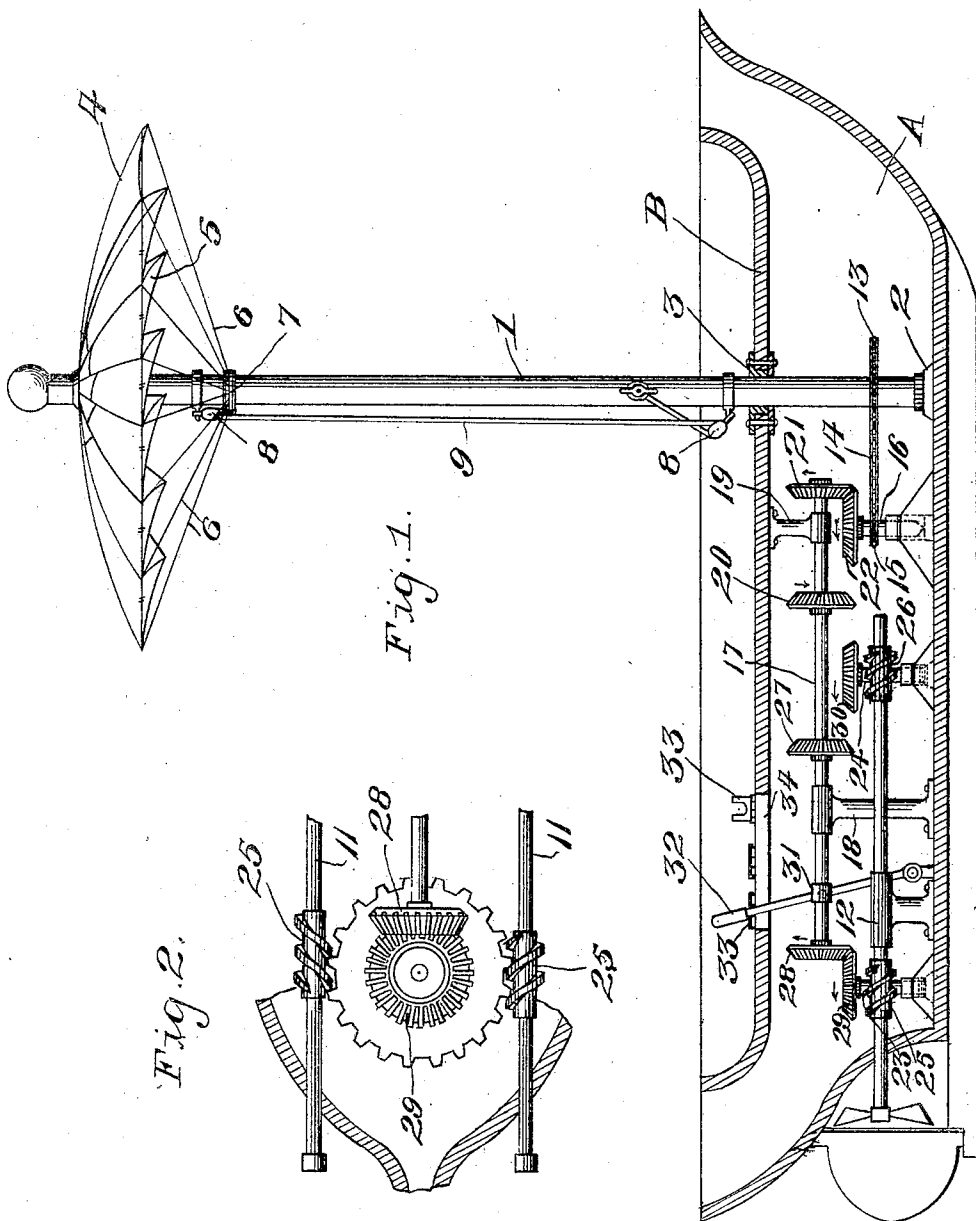
PATENTED JUNE 23, 1908.

A. T. PHILLIPS.

PROPELLER.

APPLICATION FILED MAR. 16, 1907.

2 SHEETS—SHEET 1.



Inventor

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# UNITED STATES PATENT OFFICE.

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## PROPELLER.

No. 891,728.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed March 16, 1907. Serial No. 362,720.

*To all whom it may concern:*

Be it known that I, ALONZO T. PHILLIPS, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented new and useful Improvements in Propellers, of which the following is a specification.

This invention relates to the propulsion of vessels by wind power; and it has particular reference to that class of devices in which the power of the wind is utilized for the purpose of imparting motion to one or more screw propellers; the principal objects of the invention being to utilize the force of the wind coming from any direction without the necessity of setting or adjusting the sails; to economize labor in the handling of the vessel; and to reduce the danger of capsizing as well as of injury to the operating mechanism in squalls and heavy winds.

Further objects of the invention are to provide simple and improved means for reversing the direction of movement, when desired, and to simplify and improve the general construction and operation of this class of devices.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings, Figure 1 is a sectional elevation of a vessel equipped with propelling mechanism in accordance with the principles of the invention. Fig. 2 is a detail plan view of the mechanism for transmitting motion to the propeller shafts. Fig. 3 is a sectional elevation illustrating a modified form of the invention. Fig. 4 is a sectional detail view, enlarged, taken on the plane indicated by the line 4—4 in Fig. 3.

Corresponding parts in the several figures are denoted by like characters of reference.

A designates the hull and B the deck of a vessel which may be of any desired dimensions and of any suitable construction.

A mast 1 is stepped in a bearing 2 in the lower part of the hull, and an additional bearing 3 for said mast is provided in the deck of the vessel. The mast carries a horizontally disposed wind motor 4 which in its preferred form is made of canvas or other suitable textile or flexible material supported on a frame somewhat like an umbrella frame and which, when expanded to the action of the wind, includes a plurality of folds forming pockets opening in one direction. Guy or brace rods 6 connect the rim of the motor with a runner consisting of a sleeve 7 which travels upon the mast for opening and closing the motor and which may be adjusted upon the mast by means of blocks 8 and tackle 9. As illustrated in the drawing, the blocks and tackle may be utilized for elevating the sleeve or runner 7, and the latter will be lowered by gravity; but it is obviously within the scope of the invention to utilize mechanical means of any well known description for positively lowering the sleeve or runner in order to fold the motor, when desired.

Under the construction illustrated in the several figures of the drawings twin propeller screws 10 are employed, the same being mounted upon the rear ends of horizontally disposed shafts 11, arranged parallel to each other and supported for rotation in suitable bearings 12.

Under the construction illustrated in Figs. 1 and 2 of the drawings, the mast carries a sprocket wheel 13 from which motion is transmitted by a link belt 14 to a sprocket wheel 15 upon a vertically disposed shaft 16. A horizontal shaft 17 is slidably supported in suitable bearings 18 and 19, and said shaft 17 carries oppositely disposed bevel gears 20 and 21 adapted for alternate engagement with a bevel gear 22 upon the shaft 16. Vertically disposed shafts 23 and 24 are stepped in suitable bearings intermediate of the propeller carrying shaft 11, which latter are driven by the shafts 23 and 24 through the medium of sharply pitched worms 25 and a worm gear 26. The shafts 23 and 24 are themselves driven by the shaft 17 which latter is provided with oppositely faced bevel gears 27 and 28 adapted to mesh with bevel gears 29 and 30 upon the shafts 23 and 24. The longitudinally slidable shaft 17 carries a collar 31 suitably connected with a shipping lever 32 whereby the said shaft 17 may be thrust endwise in its bearings for the purpose of placing the bevel gears 27 and 28

alternately in mesh with the bevel gears 29 and 30 in order to reverse the direction of rotation of the propeller carrying shafts. Hingedly supported locking devices 33 are provided for the purpose of securing the shipping lever and the parts operated thereby at various adjustments; said locking devices being mounted adjacent to a slot 34 in the deck through which the handle of the shipping lever projects.

It will be seen that by the construction just described motion will be transmitted from the mast to the propeller carrying shafts, and said motion may be instantaneously reversed when desired for the purpose of reversing the direction of movement of the vessel.

Under the modified construction illustrated in Figs. 3 and 4 of the drawings, the mast is provided with two sprocket wheels 35 and 36 which are connected by link belts 37 and 38 with sprocket wheels 39 and 40 that are formed upon sleeves 41 and 42 which are loosely journaled upon shafts 43 and 44 that are stepped in suitable bearings intermediate of the propeller carrying shafts with which the said vertical shafts are connected by oppositely disposed worm gearing 45 and 46. Suitably constructed clutches shown at 47 in Fig. 4 of the drawings are provided for the purpose of connecting sleeves 41 and 42 for rotation with the shafts upon which they are mounted, and hand wheels 48 are provided by means of which said clutches may be operated. It will be seen that by simply manipulating the handle 48 to lock one of the sleeves by means of the clutch mechanism 47 while the other sleeve is permitted to rotate loosely upon its carrying shaft, the direction of rotation of the propeller carrying shafts may be reversed at will. By disengaging the clutches of both the sleeves 41 and 42, transmission of motion to the propeller carrying shafts may be interrupted, when desired. It will also be understood that the longitudinally slidable shaft 17 in Fig. 1 of the drawings may be so adjusted, when desired, as to throw both sets of bevel gears 27 and 28 out of mesh with the bevel gears 29 and 30, thus interrupting the transmission of motion when desired.

From the foregoing description taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood and appreciated. It is obvious that the propellers may be continuously operated without regard to the direction of the wind and without necessity for attending to the wind driven motor beyond adjusting the latter so as to expose more or less surface to the action of the wind according to the force of the latter and to the speed that it is desired to attain.

While in the accompanying drawings only a single mast has been shown, it is obviously within the scope of the invention to use any desired number of masts, each carrying a motor, the means for transmitting motion to the propeller carrying shafts being suitably modified as will be readily understood. It is also evident that the size, proportion, and exact assemblage of the parts of the invention may be changed and modified without departing from the spirit of the invention.

Having thus fully described the invention, what I claim as new is:—

1. A shaft supported for rotation and carrying a screw propeller, a mast stepped for rotation, a flexible foldable motor wheel supported upon the mast, a sleeve slidable upon the latter, guy members connecting the sleeve with the rim of the motor wheel, means for adjusting the sleeve upon the mast and means for transmitting motion from the latter to the propeller carrying shaft.

2. A shaft supported for rotation and carrying a screw propeller, a mast stepped for rotation, a flexible foldable motor wheel supported upon the mast, said motor wheel comprising a plurality of angular pockets, a sleeve slidable upon the latter, brace rods connecting the sleeve with the rim of the motor wheel, means for adjusting the sleeve upon the mast and means for transmitting motion from the latter to the propeller carrying shaft.

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

ALONZO T. PHILLIPS.

Witnesses:

W. D. STEPLOE,  
C. W. MOSSELL.