A. BALAGUER.

PROPELLER.

APPLICATION FILED JULY 21, 1919.

1,403,729.

Patented Jan. 17, 1922.

3 SHEETS—SHEET 1.

Fig. 1.

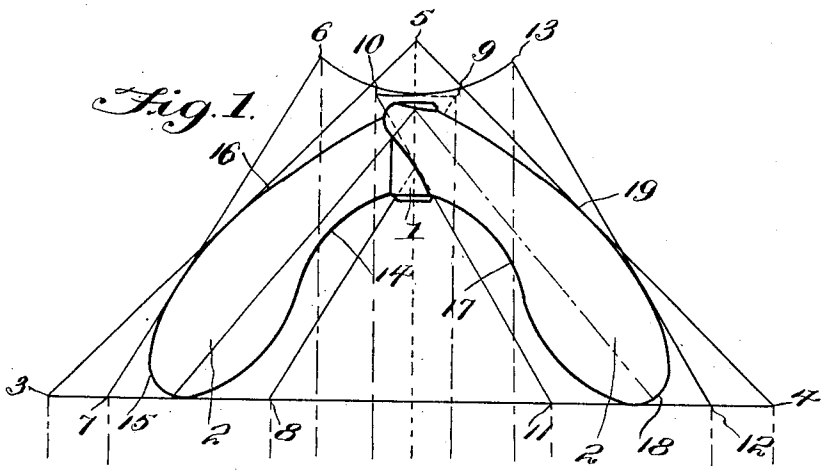
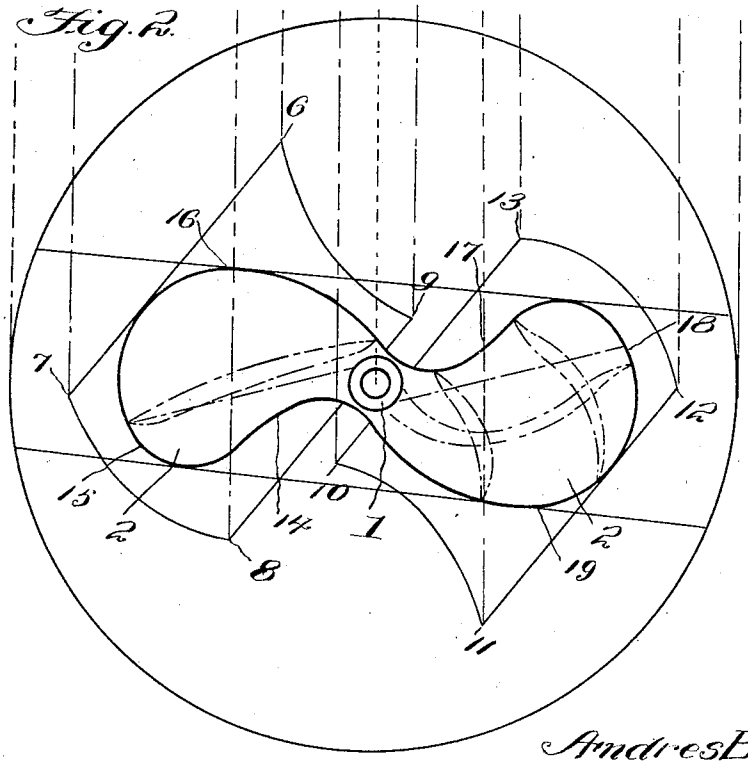


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

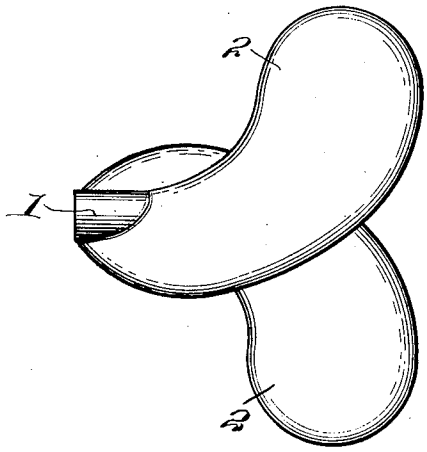
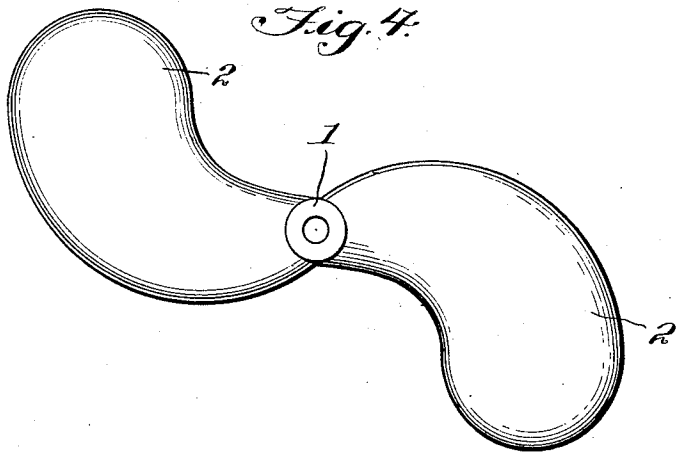


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

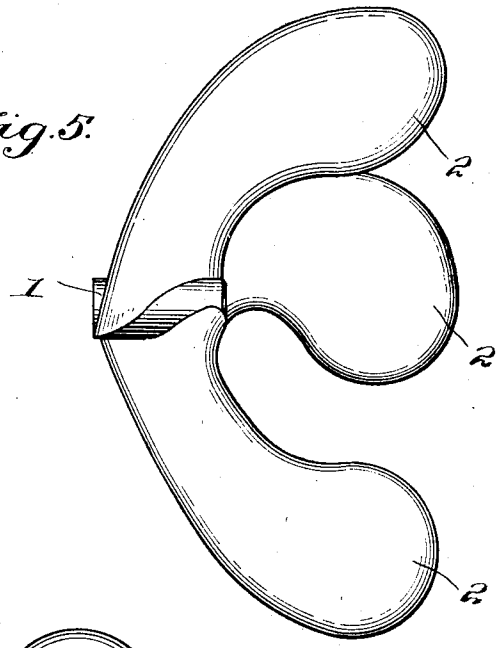
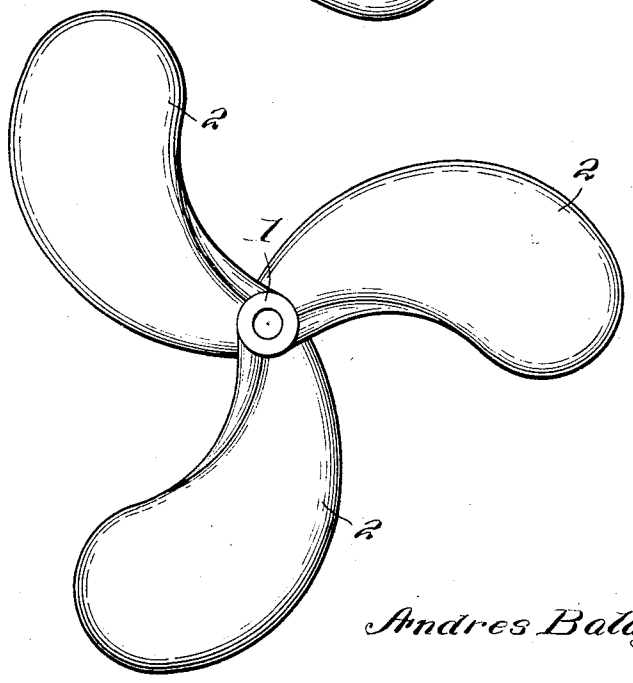


Fig. 6.



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UNITED STATES PATENT OFFICE.

ANDRES BALAGUER, OF MARIANAO, HABANA, CUBA.

PROPELLER.

1,403,729. Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed July 21, 1919. Serial No. 312,282.

To all whom it may concern:

Be it known that I, ANDRES BALAGUER, a citizen of the Republic of Cuba, and a resident of Marianao, Province of Habana, Cuba, (whose post-office address is Sama Street No. 31, Marianao, Province of Habana, Cuba,) have invented certain new and useful Improvements in Propellers, of which the following is a specification.

This invention relates to screw-propellers for ships and one of its objects is to provide a propeller having blades of novel form and arrangement by means of which friction is reduced between the blades and the water in which the propeller rotates.

Another object of this invention is to provide a form of propeller which causes the water as it is thrown out to attain the spiral form rearwardly in the longitudinal direction of the rotating propeller shaft and thus increase the efficiency of the propeller.

The invention is described with reference to the figures of the annexed drawings, in which:

Fig. 1 is a vertical projection and Fig. 2 is a horizontal projection of the geometrical formation of the blades of this new propeller.

Fig. 3 is a side elevation of a two-blade propeller made according to this invention.

Fig. 4 is a front end view of the same two-blade propeller.

Fig. 5 is a side elevation of a three-blade propeller made according to this invention.

And Fig. 6 is a front end view of the same three-blade propeller.

This propeller comprises a hub 1 from which lead blades 2 outwardly and rearwardly directed in an inclination of 45 degrees from its axis with respect to the rotating shaft and in a spiral deviation from the hub 1, each blade presenting a conical surface and forming between each two adjacent blades a parabolical curve limiting the space comprised between same.

The formation of the conical surfaces of blades 2 in axial spiral line is obtained by intersecting a conical body 3, 4, 5 whose angle at the vertex is of 90 degrees, with a plurality (two or three) cylindrical bodies of parabolical section 6, 7, 8, 9 and 10, 11, 12, 13 so arranged as to form angles of 45 degrees with the base of cone 3, 4, 5 and with the axis of the same cone. The resulting intersection curves 14, 15, 16 and 17, 18, 19 define the contour of the surface portions of cone 3, 4, 5 which constitute the blades 2 and which terminate at its inner upper end on a periphery of hub 1 in a spiral curve. And two conicl surfaces of two adjacent blades 2, Figs. 3 and 4, constitute a parabolical curve 12, 2, 19. The blades 2 have their front edges sharpened in order to aid the passage of the blades through the water.

The end of blades 2 opposite hub 1 is preferably slightly deviated outwardly from the rotating shaft with the aim in view that the mass of water gathered by each blade 2 when being thrown out may find an outwardly deviation from the propeller, thus aiding the escape thereof without producing friction or retrocession which are so disadvantageous in the propellers at present in use.

What I claim is:

A propeller comprising a hub and blade leaning outwardly and rearwardly from the hub and at an angle of 45° from the axis thereof, each blade presenting a conical surface, said surfaces of two adjacent blades forming a parabolic curve between them.

In witness whereof I affix my signature.

ANDRES BALAGUER.