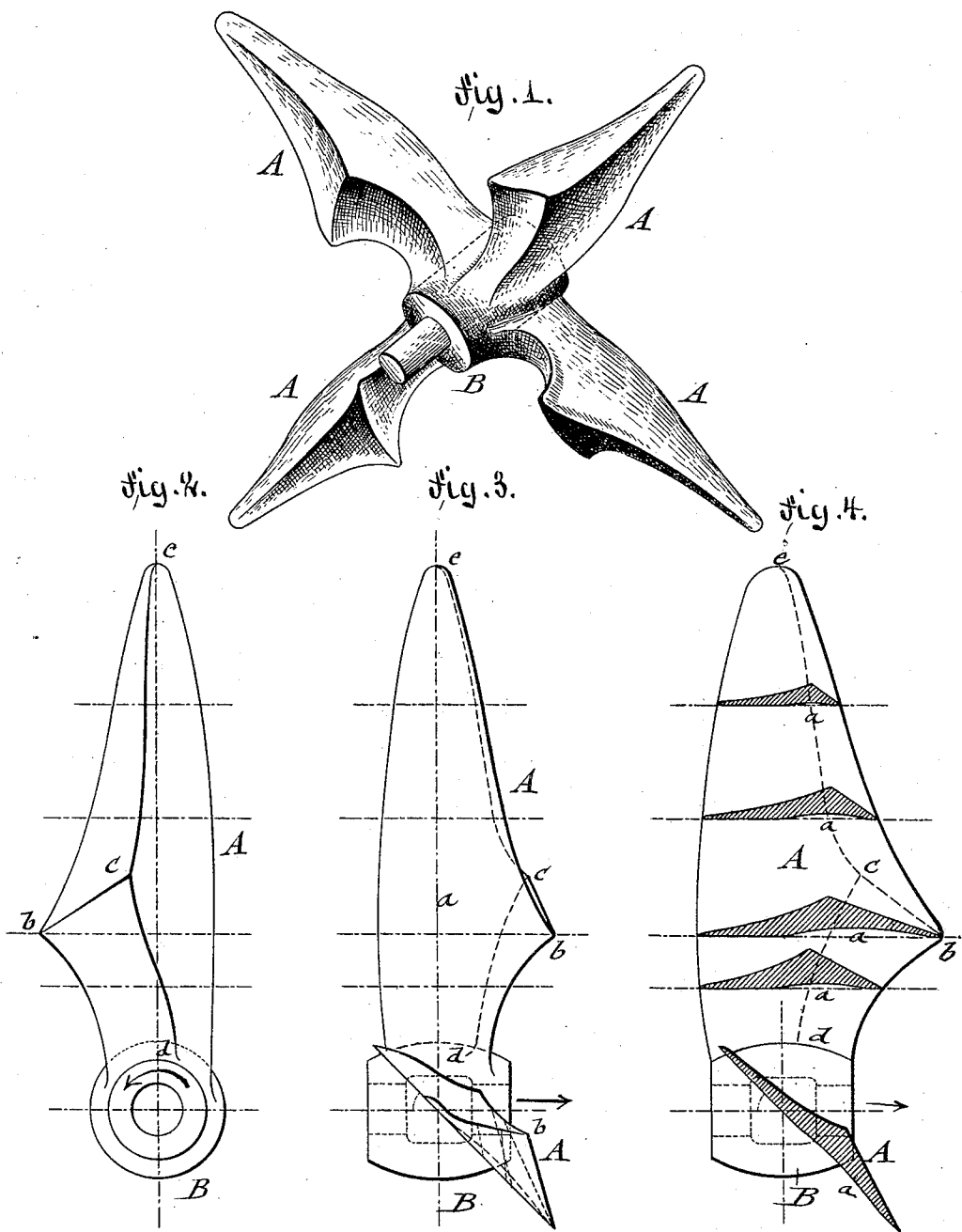


(Model.)

M. VOGELGESANG.
SCREW PROPELLER.

No. 408,864.

Patented Aug. 13, 1889.



WITNESSES:

F. H. Roenbaum.
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UNITED STATES PATENT OFFICE.

MAX VOGELGESANG, OF HOBOKEN, NEW JERSEY, ASSIGNOR OF ONE-HALF
TO JOHN H. BONN, OF SAME PLACE.

SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 408,864, dated August 13, 1889.

Application filed March 6, 1889. Serial No. 302,166. (Model.)

To all whom it may concern:

Be it known that I, MAX VOGELGESANG, of Hoboken, in the county of Hudson and State of New Jersey, a citizen of Germany, have invented certain new and useful Improvements in Screw-Propellers, of which the following is a specification.

This invention relates to certain improvements in the construction of screw-propellers for vessels by which a more effective working of the propeller and a steadier and smoother motion of the same, even at high speed, is obtained; and the invention consists of a screw-propeller the blades of which are secured to the hub at an angle of inclination to the axis of the same, and slightly concaved on their working-faces toward the cutting-edges of the blades, which cutting-edges are made with an obtusely-angled projection or nose that is connected by a short inclined ridge with a longitudinal ridge, which ridges form inclined faces at the rear side of each blade, so as to conduct the water parallel, or nearly so, with the working-faces of the blades, and produce an increased effectiveness and a steady motion of the propeller.

In the accompanying drawings, Figure 1 represents a perspective view of my improved screw-propeller. Figs. 2 and 3 are respectively a rear view of one of the blades and a side elevation of the same; and Fig. 4 is a side view of one of the blades of the propeller-screw, showing different cross-sections of the same, taken on lines parallel to the axis of the screw, said cross-sections being developed into a vertical plane with the section-lines as the base thereof.

Similar letters of reference indicate corresponding parts.

A A in the drawings represents the blades of my improved screw-propeller, and B the hub of the same. The blades A are arranged at an angle of inclination to the axis of the hub, as customary in screw-propellers. The working-face *a* of each blade A is slightly concaved toward the front or cutting edge of the same, the degree of concavity being clearly indicated in the cross-section, taken at different points of the blade, as shown in Fig. 4. The greatest concavity in the working-

face *a* of the blade A is arranged at the point of greatest width of the blade, from which the concavity of the face diminishes gradually toward the hub and point of the blades. The front or cutting edge of each blade is made in the shape of an obtuse angle, so as to form a projection or nose *b*, which is located at the point of the greatest width of the blade. From the projection or nose *b* of the cutting-edge extends at the rear side of the blade an inclined transverse ridge *b c*, the inner edge of which is connected with the hub B and the point of the blade by a longitudinal ridge *d c e*, as shown in Figs. 2 and 4. The ridges *b c* and *d c e* form with the edges of the blade A three slightly-concaved faces, that incline from the point of greatest thickness formed at the intersection of the transverse ridge *b c* with the longitudinal ridge *d c e*. By the rotation of the blades on the axis of the hub in the direction of the arrow shown in Fig. 2, the angular front or cutting edges cut through the water and conduct it between the blades along the inclined faces *b c d* and *b c e* at the rear of the blades, and over the longitudinal ridges *d c e* toward the straight rear edges of the blades in such a manner that the water is passed through between the blades in a direction nearly parallel, or, at least, at a very oblique angle, to the working-faces *a* of the blades, so that said working-faces are very little, if at all, affected by the backwardly-moving body of water forced through between the blades of the screw. The inclined guide-faces formed on the rear sides of the blades serve thus to impart to the body of water that is forced through between the blades during the forward motion of the vessel a clearly-defined direction, which is parallel or nearly parallel with the working-faces of the blades. It is conceded that the inclined guide-faces formed by the longitudinal and transverse ridges at the rear sides of the blades, exert a certain resistance against the forward motion of the screw in axial direction, and cause thereby a small loss of power to the same; but practical tests made with my improved screw have clearly established that this small loss of power is more than compensated by the decreased slip produced by the direction im-

parted to the water in passing between the blades, by which the water moves off in a direction parallel to the working-faces, and produces thereby not only a greatly-increased
5 working effect of the screw, but also an easier and smoother motion of the same through the water.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

10 1. A screw-propeller the working-faces of which are arranged at an angle to the axis of the propeller and slightly concaved toward the obtusely-angled front or cutting edges of the blades, which latter are re-enforced at their
15 rear sides by an inclined transverse ridge, and a longitudinal ridge extending from the inner end of the transverse ridge toward the hub and point of the blade, so as to form inclined guide-faces by which the water passing

over the ridges is conducted off in a direction 20 nearly parallel to the working-faces of the blades, substantially as set forth.

2. A screw-propeller having radial blades inclined to the axis of the propeller and obtuse-angled front or cutting edges, and inclined guide-faces formed at the rear sides of the blades by an inclined transverse ridge, and a longitudinal ridge that extends from the inner end of the transverse ridge toward the hub and the point of the blades, substantially as set forth. 25 30

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

MAX VOGELGESANG.

Witnesses:

PAUL GOEPEL,
CHAS. KARP.