

G. A. SCHLOTTER.
PROPELLER.
APPLICATION FILED JULY 7, 1911.

1,062,258.

Patented May 20, 1913.

2 SHEETS—SHEET 1.

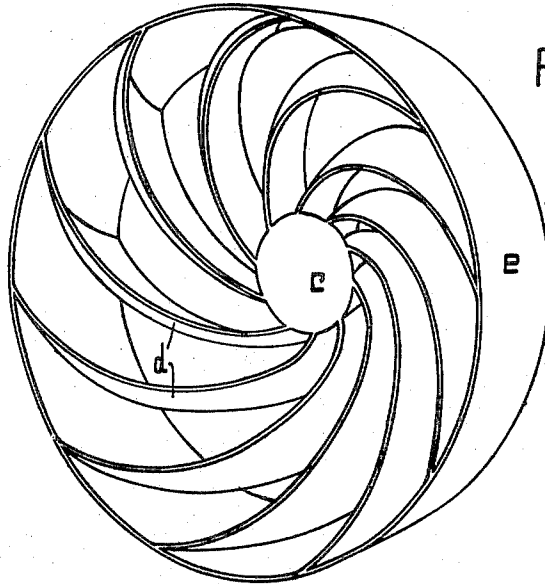


Fig. 1.

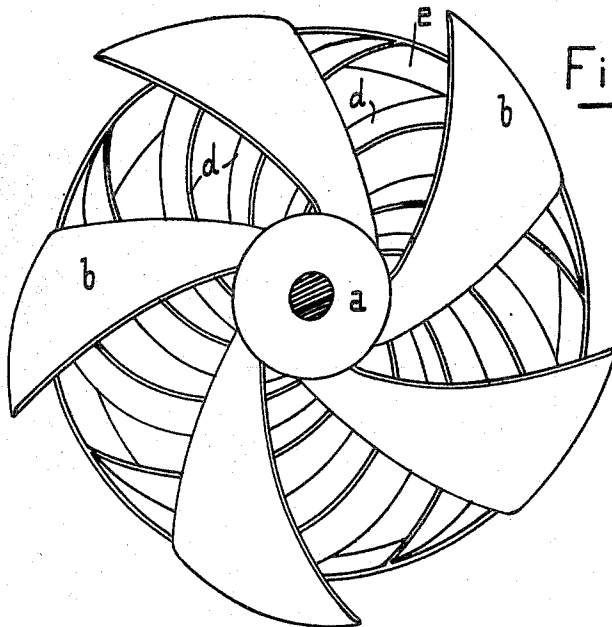


Fig. 2.

Witnesses:

John Murtagh
L. J. Murphy

Inventor:

Georg Arthur Schlatter
By: *Georg Goepel*
Attorney.

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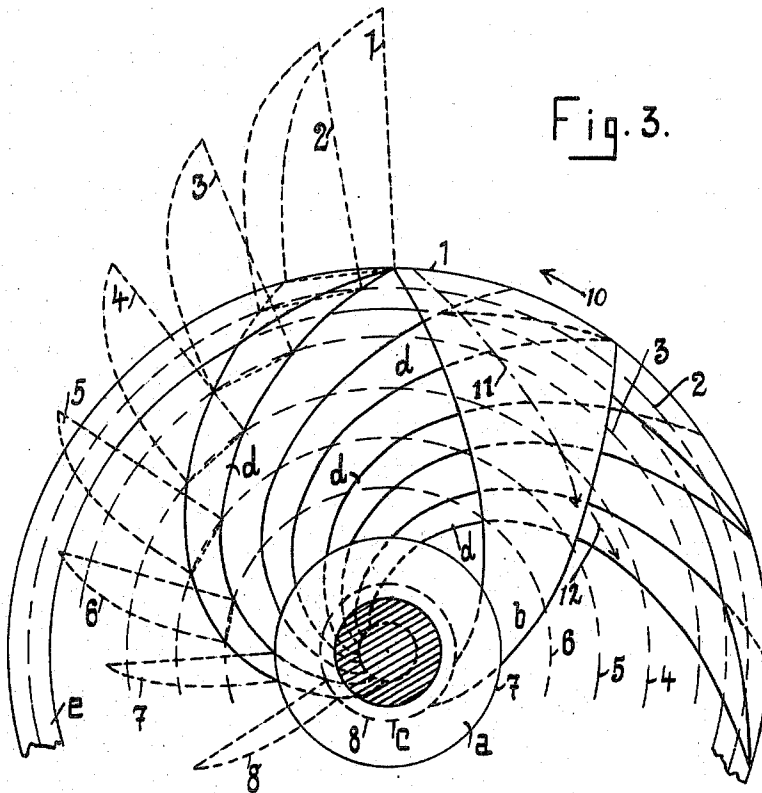


Fig. 3.

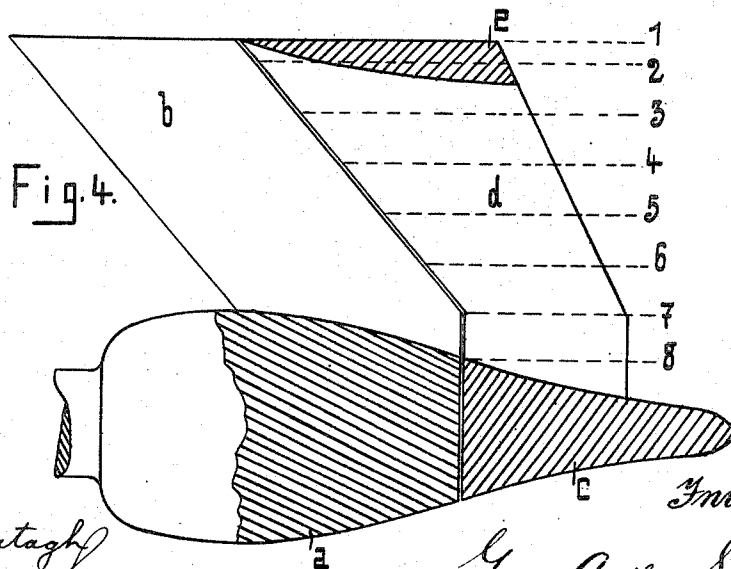


Fig. 4.

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Inventor:

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UNITED STATES PATENT OFFICE.

GEORG ARTHUR SCHLOTTER, OF DRESDEN, GERMANY.

PROPELLER.

1,062,258.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed July 7, 1911. Serial No. 637,263.

To all whom it may concern:

Be it known that I, GEORG ARTHUR SCHLOTTER, a citizen of the German Empire, residing in Dresden-A., in the Kingdom of Saxony, in said Empire, have invented certain new and useful Improvements in Propellers, of which the following is a specification.

This invention relates to propellers, and more particularly to means for increasing the efficiency thereof. It is also applicable to ventilators and the like. Still more particularly the object of the invention is also to increase the efficiency in the use of the propeller such as shown in my Letters Patent No. 921,896, reissued No. 13,349, and dated January 2, 1912. The efficiency sought for is obtained by combining an outlet-guide mechanism at the discharge side of the propeller-blades.

For this purpose the invention consists of the combination with the propeller of a winged outlet mechanism located on the pressure or discharge side of the blades of the propeller, said outlet mechanism consisting of stationary guide-blades which are shaped to correspond to the blades of the propeller but curve in opposite direction to the same.

The invention also consists in having the guide-blades and propeller so arranged, that the outlet edge of the propeller is approximately at right angles to the inlet-edge of the guide-blades.

The invention consists further in the tapering rim of the outlet mechanism combined with the blades surrounded thereby.

In the accompanying drawings, Figure 1 represents a perspective view of the outlet-mechanism of the propeller, Fig. 2 is a perspective view of the propeller, shown in connection with the outlet mechanism arranged at the rear or pressure-end of the same, the shaft being in section, Fig. 3 is a diagrammatic front-view of the propeller and its outlet-mechanism, showing the development of one blade of the same, and Fig. 4 is a vertical longitudinal section of the propeller and its outlet mechanism.

Similar letters of reference indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, the hub *a* of the propeller has blades *b*, *b* and gradually diminishes in diameter, tapering fashion. At the end of the hub at its smallest diam-

eter abuts a center-piece *c* of the outlet mechanism and forms a tapering continuation of the hub, as shown in Fig. 4. The propeller is constructed with blades that extend from the hub *a* which blades are preferably made according to Letters Patent No. 921,896 above referred to, but any other propeller-blades may be employed. The outlet mechanism is arranged adjacent to the edges of the propeller-blades *b* and is composed of a curved guide-blade *d* which, extending from the center-piece *c* to a rim *e* surrounds the blades. The cross-section of the circumferential rim *e* tapers from its thinner outer sharp edge toward the inner edge adjacent to the blades of the propeller, as shown clearly in Fig. 4. The edges of the curved guide-blades *d* of the outlet-mechanism cross the adjacent edges of the blades *b* of the propeller approximately at right angles, as shown in Figs. 2 and 3. The development of the guide-blades *d* is indicated in the profiles 1 to 8 corresponding to the circles 1¹ to 8¹ of the guide-blades shown in Fig. 3, corresponding indications being shown in Fig. 4. The direction of rotation of the propeller is indicated by the arrow 10, while the dotted arrow 11 indicates approximately the direction of the resultant of the simultaneous lateral and axial gripping and drawing effect of the fluid, mainly in the direction of the arrow. The fluid blows through the propeller-blades and obliquely toward the axis. By the impingement of the current of the fluid, whether it be air, water or any other fluid, on the guide-blades *d*, the change in the direction of the fluid and the conducting of it then results. The main direction of the fluid is then indicated by the dotted arrow 12 in Fig. 3.

The outlet-mechanism acts in two ways: Firstly, the eddies which impair the efficiency are diminished, for the reason that the eddies which are produced by the blades of the propeller, are cut up at the moment when they are formed; secondly, then also, the fluid which is forced by the propeller-blades obliquely toward the axis, is changed in its direction and conducted by the effective surface of the guide-blades again more outwardly and so in a substantially-axial direction. Both act to obviate loss of pressure and so improve the efficiency. The second feature produces to some extent a better distribution of the fluid current on the given

cross-sections of the passages between the guide-blades. This is favorably influenced by the relatively considerable decrease of the middle part of the given cross-section
5 due to the gradual narrowing of the width of the passages at the inner ends of the guide-blades near the shaft, while the outer zone of the passages permits the free passage of the fluid.

10 I claim:

1. The combination of a screw-propeller and an outlet-mechanism in which the curved guide-blades are arranged in a direction opposite to the curvature of the propeller-blades in such a manner that the
15 edges of the propeller-blades are approximately at right angles to the edges of the

curved guide-blades of the outlet-mechanism.

2. The combination with propeller-blades, 20 of an outlet mechanism consisting of curved outlet guide-blades at the interior thereof and having their edges adjacent the edges of the propeller-blades, and a circumferential rim, tapered from its thicker outer portion toward its inner sharper edge and toward the edges of the propeller-blades. 25

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

GEORG ARTHUR SCHLOTTER.

Witnesses:

OTTO WOLFF,

RICHARD IFFERTE.