

No. 864,484.

PATENTED AUG. 27, 1907.

F. W. ORDING.  
SCREW PROPELLER.  
APPLICATION FILED DEC. 8, 1906.

Fig. 1

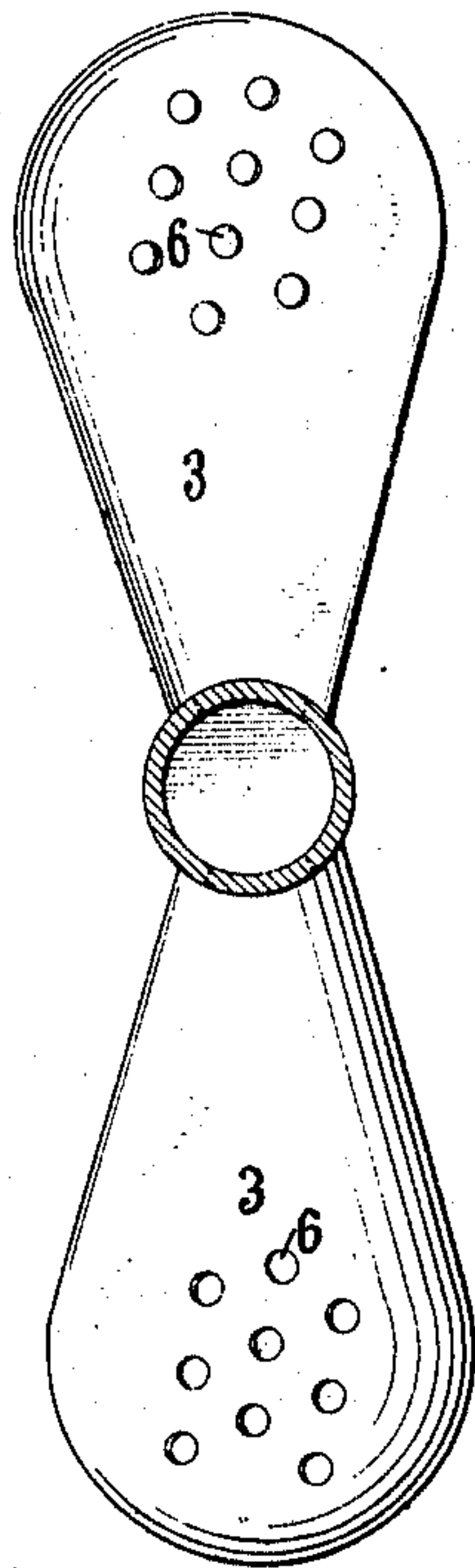


Fig. 2.

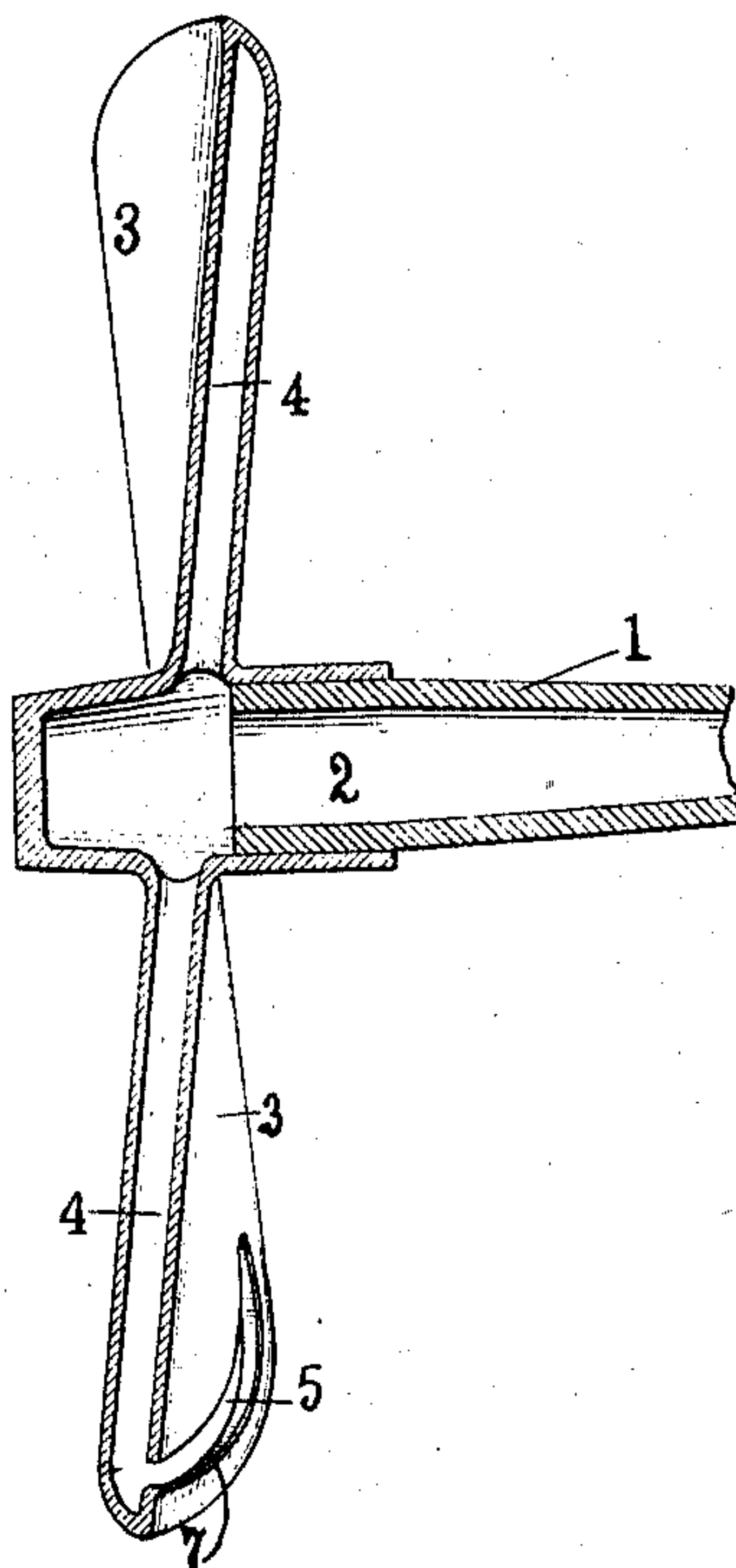


Fig. 3

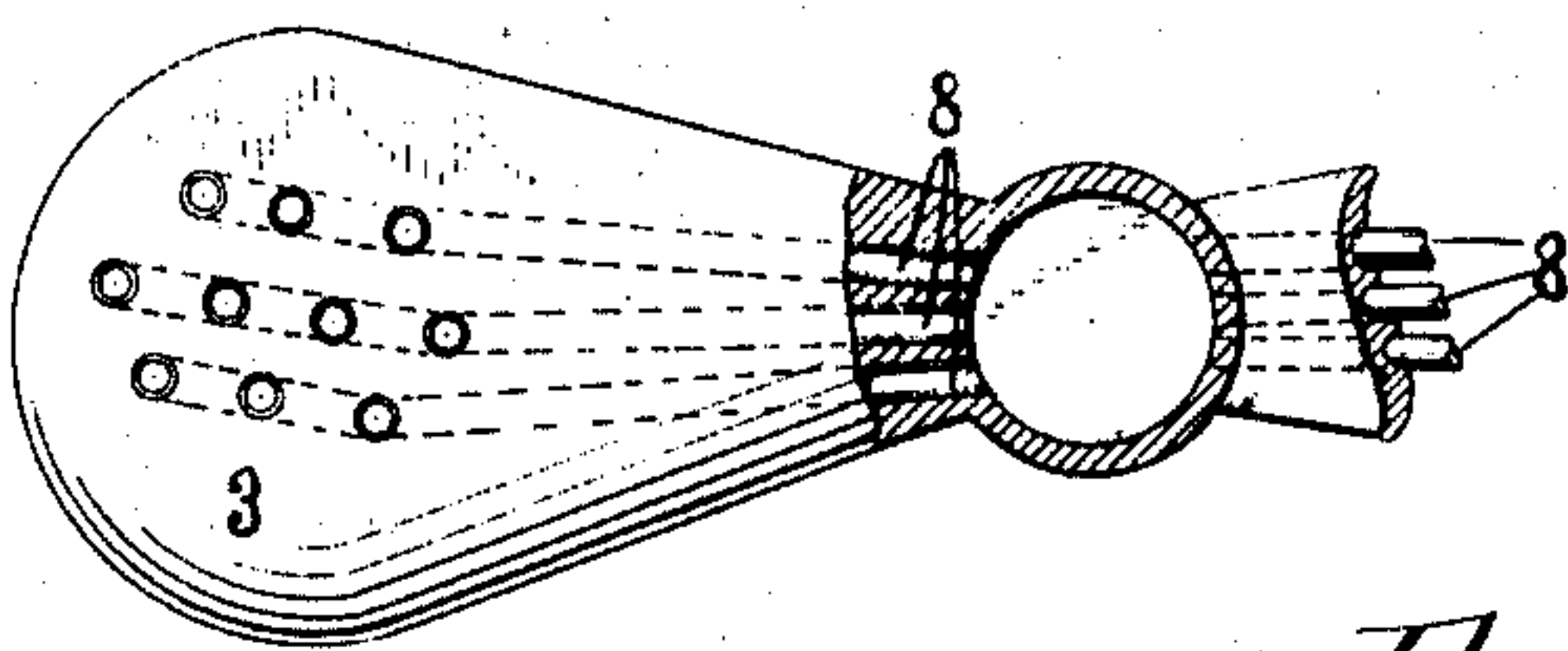


Fig. 4.

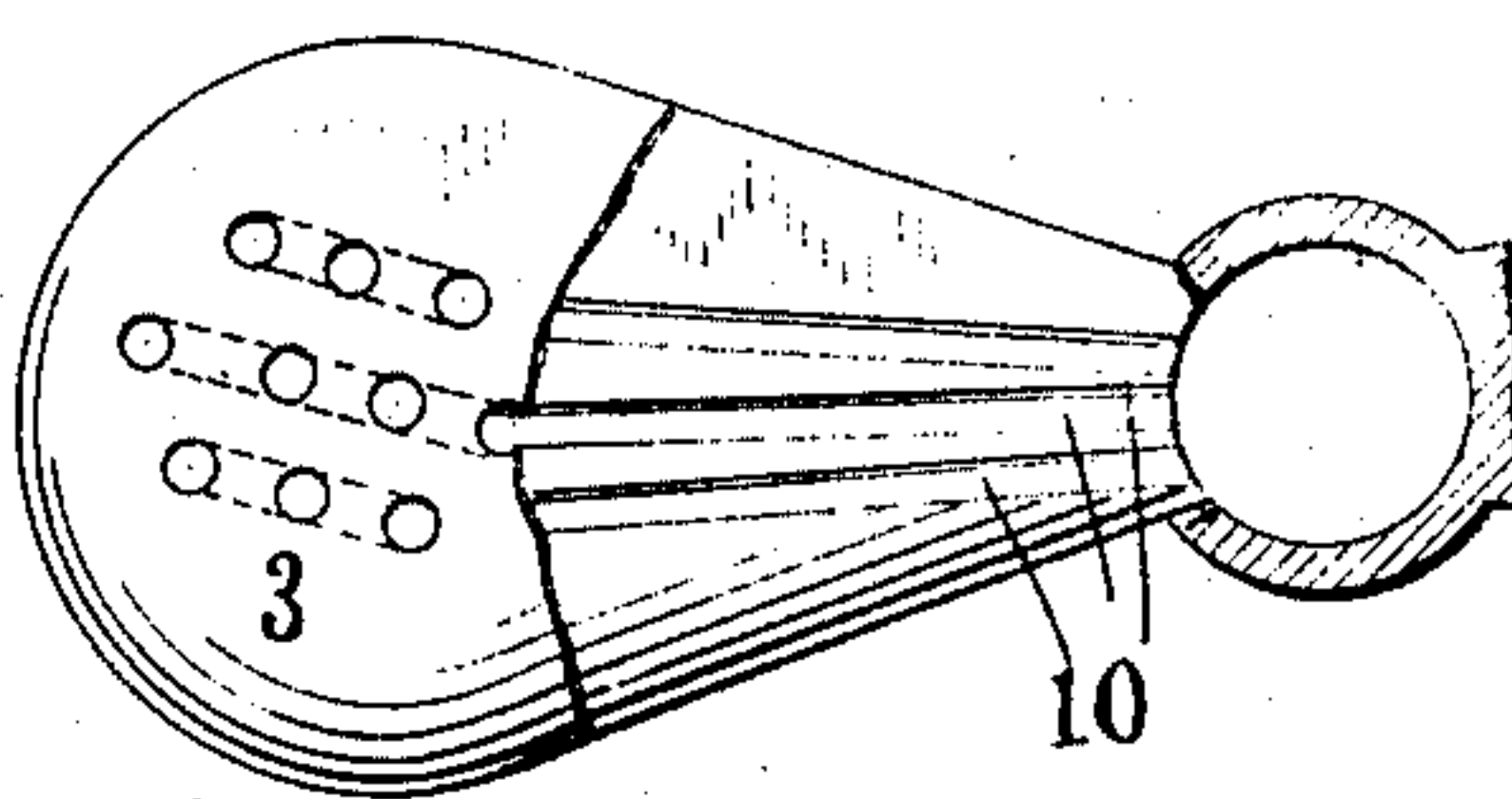


Fig. 5

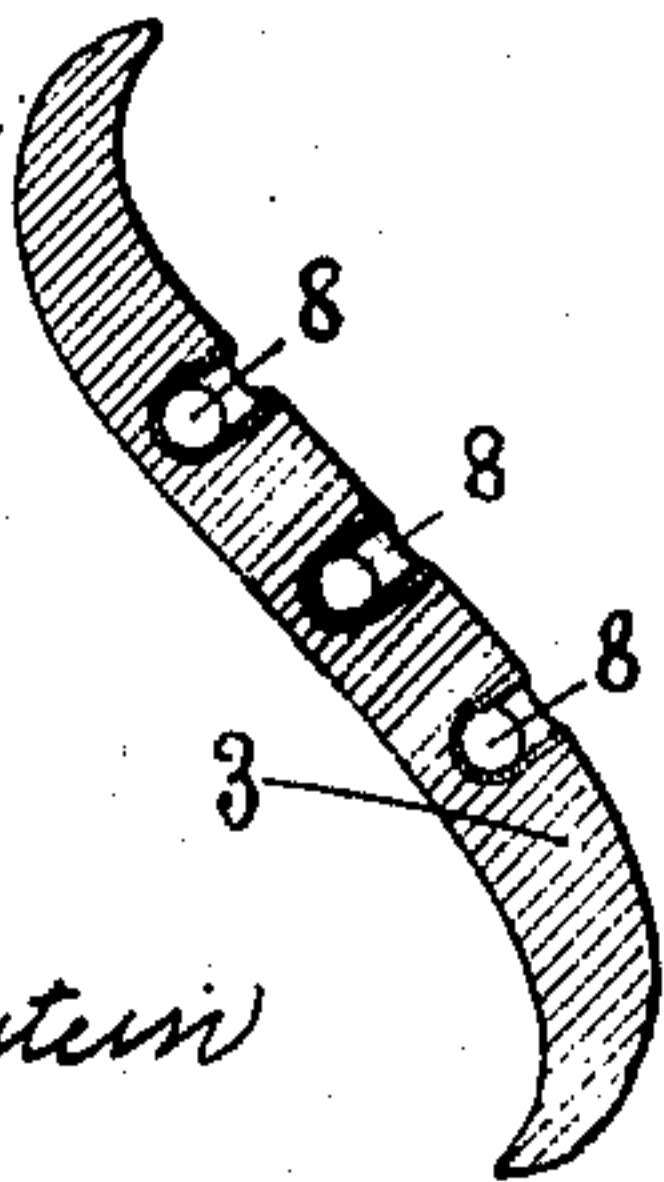
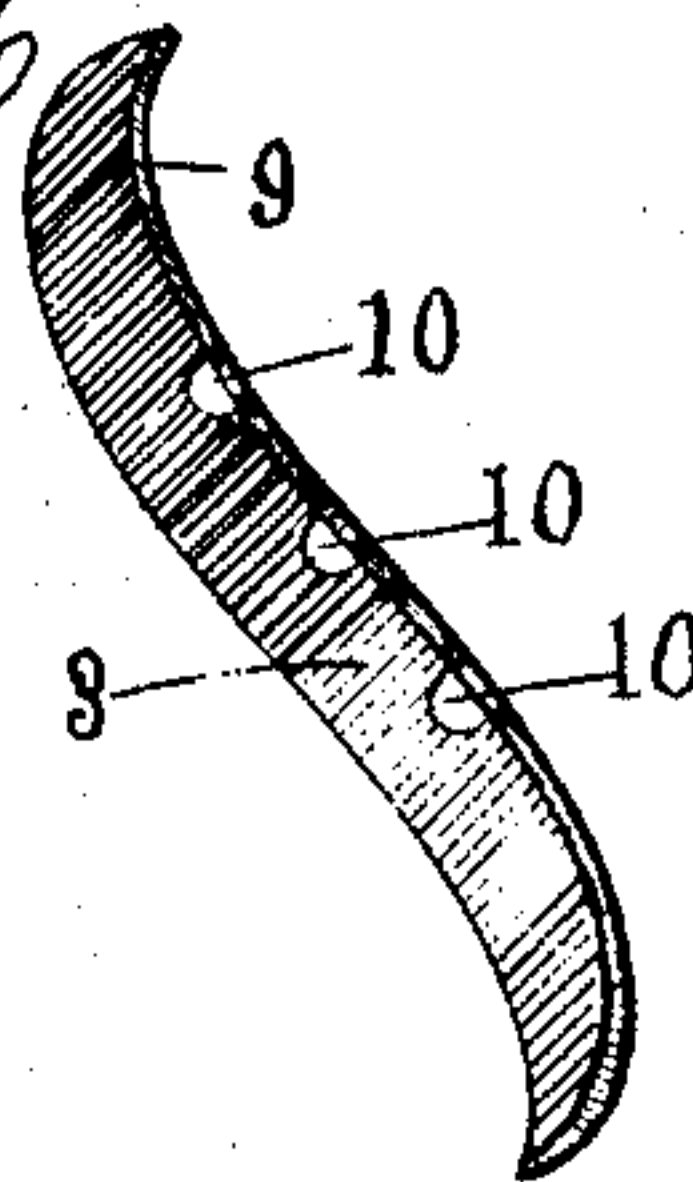


Fig. 6



WITNESSES:

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FREDERICK W. ORDING, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF ONE-HALF TO EMIL HIGGINS, OF NEW YORK, N. Y.

## SCREW-PROPELLER.

No. 864,484.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed December 8, 1906. Serial No. 346,873.

*To all whom it may concern:*

Be it known that I, FREDERICK W. ORDING, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Screw-Propellers, of which the following is a specification:

The primary object of my invention is to increase the efficiency of screw propellers for marine propulsion without a corresponding increase of the power required to operate them.

Numerous other advantages accrue from its use some of which are set forth in the specification.

I attain my object in the manner illustrated in the accompanying drawing in which typical propeller blades embodying my invention are shown.

Figure 1 is a face view of one form of my improved propeller; Fig. 2 a view partly in section, of a modification of the structure of Fig. 1; Figs. 3 and 4 views partly in section, of structural modifications of my improved propeller and Figs. 5 and 6 are sectional views of further structural modifications.

The propeller blade may be of any suitable or desired size, shape, material or construction and I form therein a fluid passage or a plurality of fluid passages.

As shown in Figs. 1 and 2 the propeller blade is hollow and is mounted on the shaft 1 which is provided with a fluid passage 2 communicating with the interior 4 of the blade 3. This passage is preferably closed at its outer end as shown in Fig. 2. In practice a hollow shaft is used on account of its strength and lightness. This hollow blade 3 is provided with an outlet or outlets preferably on one of its faces. These outlets may be of any desired form, number or arrangement. I show a single crescent opening 5 in Fig. 2 and the plurality of circular apertures 6 in Fig. 1. These apertures may be protected by a lip 7 to assist in the pumping action.

As shown in Fig. 3 the blade is cast around the pipes 8 having outlets on the face of the blade and inlets at the hub.

In Fig. 4 the fluid passages are cast in the blade and extend from the hollow hub to one face.

In Fig. 5 channels are cast in the blade and the pipes laid therein.

In Fig. 6 channels 10 are cast in the face and the cover plate 9 is secured thereover.

In operation the fluid passage 2 of the shaft 1 is connected with any source of fluid supply. In a boat an intake pipe would be run out at the bow and carried through the condenser of a steam engine or the cooler of a gas engine thence to the passage 2. On revolving the shaft and propeller in either direction fluid is drawn at the bow thereby assisting to relieve bow pressure, circulates through the condenser or cooler and finally is discharged through the opening or openings in the blade where it tends to relieve or decrease the vacuum ordinarily caused by the rapid rotation of the screw propeller. If desired a small turbine for power purposes may be installed along the pipe line.

By the use of my improved propeller blade a greater speed is attained without any increase of the power required to drive the boat.

It is obvious that blades embodying my invention are capable of use in a variety of ways, for example as a pump in pumping liquids when the blade is rotated in one position, the intake being through the shaft fluid passage and the outlet being through the blade apertures, the blades being surrounded by a tight case provided with an outlet.

I claim:—

1. A screw propeller blade having a fluid passage therein provided with an outlet in one face thereof and a lip on the face of the blade adjacent to the outlet.
2. A screw propeller blade having a plurality of fluid passages therein each of which is provided with an outlet in the face of the blade and a lip on the face of the blade adjacent to the outlet.
3. A hollow screw propeller blade having an outlet in the face thereof and a lip on the face of the blade adjacent to the outlet.
4. A hollow screw propeller blade having a plurality of outlets in the face thereof and lips on the face of the blade adjacent to each of said outlets.
5. A screw propeller comprising a hollow shaft closed at the outer end, a plurality of hollow blades thereon in open communication with the interior of the shaft, outlets in the faces of the blades and lips on the faces of the blades adjacent to the outlets.

In testimony whereof I have affixed my signature in presence of two witnesses.

FREDERICK W. ORDING.

Witnesses:

CONRAD DIHHL,  
ROBT. B. KILLGORE.