

(No Model.)

W. H. DANIELS.
PROPELLER WHEEL.

No. 406,708.

Patented July 9, 1889.

Fig. 1.

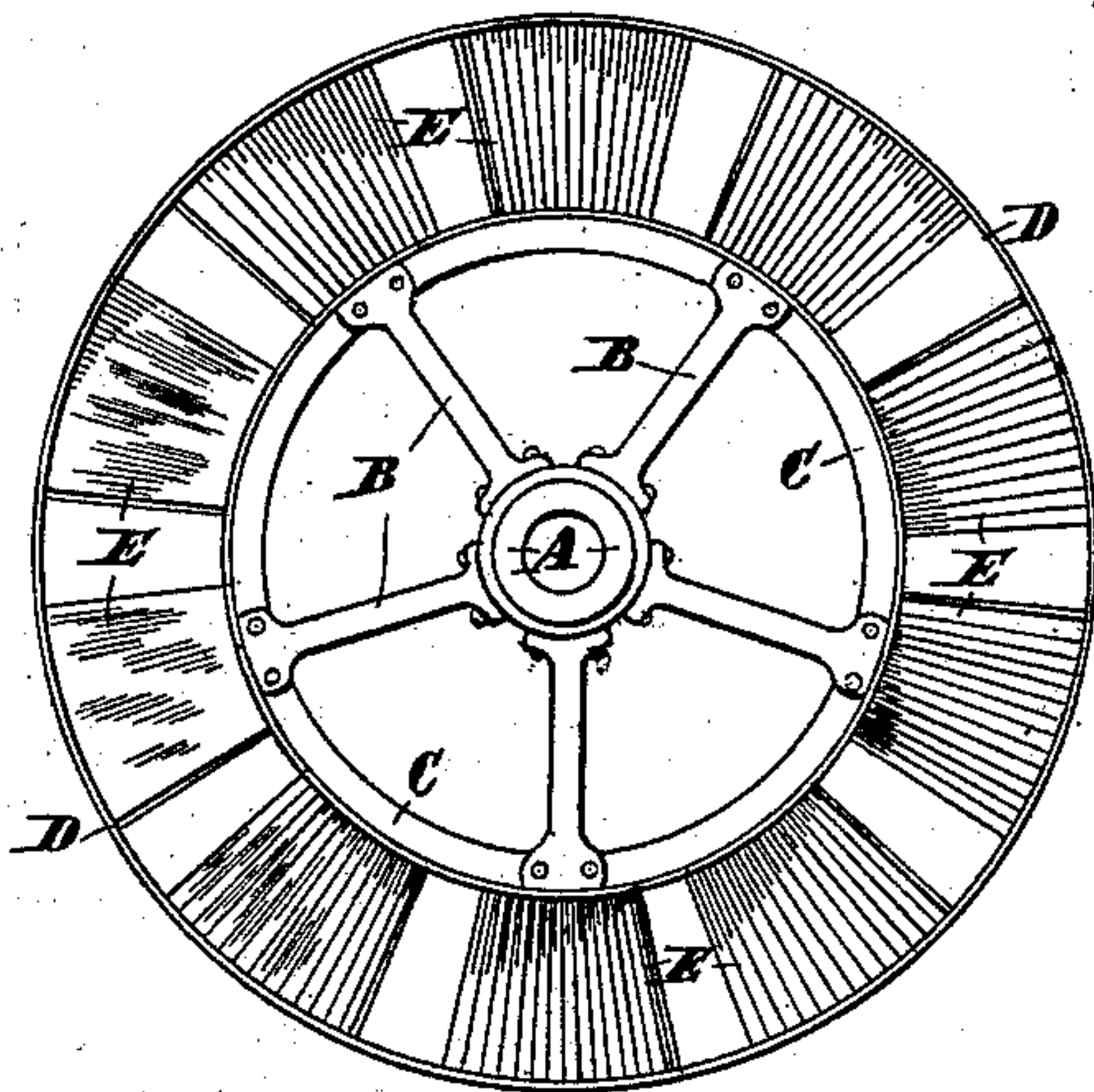
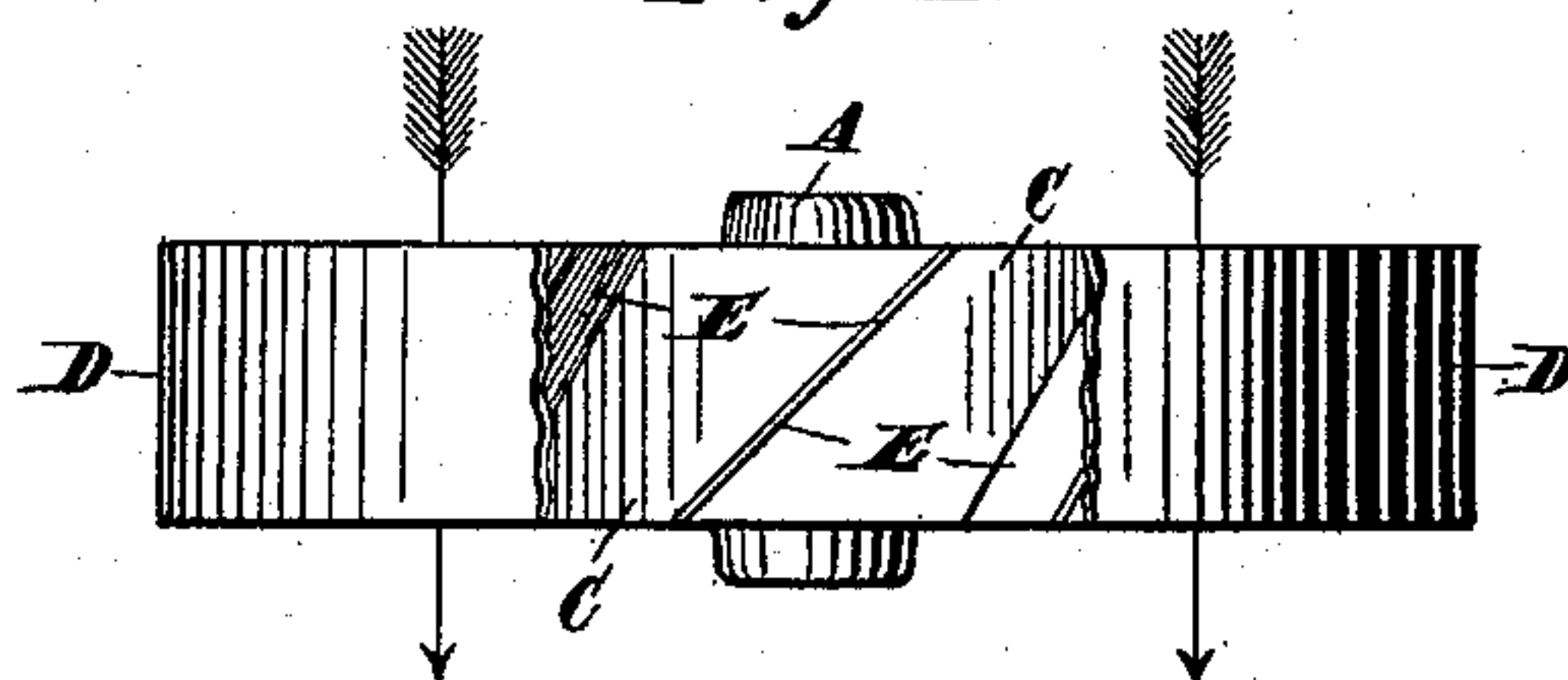


Fig. 2.

Witnesses

O. C. Duffy
H. E. Peck

Inventor

William H. Daniels

per O. C. Duffy
Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM HENRY DANIELS, OF SOUTHAMPTON, ENGLAND.

PROPELLER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 406,708, dated July 9, 1889.

Application filed November 15, 1888. Serial No. 290,939. (No model.) Patented in England November 2, 1888, No. 15,844.

To all whom it may concern:

Be it known that I, WILLIAM HENRY DANIELS, a subject of the Queen of England, residing at Southampton, in England, have invented certain new and useful Improvements in Propeller-Wheels, (for which an application has been filed in England, dated November 2, 1888, No. 15,844,) of which the following is a specification.

This invention relates to a form of submerged paddle-wheel placed in the position usually occupied by a screw-propeller, but in appearance favoring that of the former rather than the latter. It has been found by experience that in a propeller-wheel the greatest power is obtained at or near the outer tips of the blades, and that very little power is obtained from the inner portions of the blades surrounding and radiating from the central boss.

The object of this invention is to utilize only what would constitute the tips of ordinary blades or their equivalent, and to leave a clear water-space, which in an ordinary propeller-wheel would be taken up by the inner portions of the blades. It will thus be seen that I utilize only that portion of the propeller-wheel which is really useful.

The invention will be best understood by reference to the accompanying drawings, in which—

Figure 1 represents a plan of the wheel as it would be in position with a part of the outer casing removed, and Fig. 2 is a side elevation.

The wheel consists of a boss A and arms B, of any suitable construction, upon the outer extremities of the latter of which is a thin circular plate or rim C, upon the face of which and between another similar and concentric rim D are secured blades E, set at a suitable angle—say, for example, forty-five degrees—with the axis of the shaft.

As the wheel revolves, the water is forced

back, passing between the blades E and the rims C and D, the space between each pair of blades being completely closed in, excepting in a fore-and-aft direction, by the rims C and D, so that the space between each pair of blades is like a short tunnel through which the water is driven either in the direction of the arrows in Fig. 1 or in the opposite direction, according to the direction in which the wheel is revolved. It will be seen there is no churning of the water, and consequently no useless force is expended in the space between rim C and boss A, through which the water freely flows.

I am aware that blades set at a suitable angle have before this been secured upon a ring similar to C, and their tips tied by a stay-ring; but in all cases, as far as I am aware, two or more propeller-blades have radiated from a central boss and churned the water flowing through the central space, thus defeating the very object I have in view.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

A marine propeller formed of a central boss, arms of a suitable length radiating from said boss approximately parallel to the plane of motion, an inner circular rim carried by the ends of said arms, transverse blades set at any desired pitch and secured to said rim, and the outer concentric rim to which the tips of the blades are secured, the space between the boss and inner rim affording a free water-space, whereby churning is prevented, substantially as set forth.

In testimony whereof I have hereto set my hand in the presence of the two subscribing witnesses.

WILLIAM HENRY DANIELS.

Witnesses:

HAROLD WADE,

WALTER J. SKERTEN.