T. J. COULTER.

Sculling-Propellers for Boats.

No. 227,491. Patented May 11, 1880.

Fig. 1

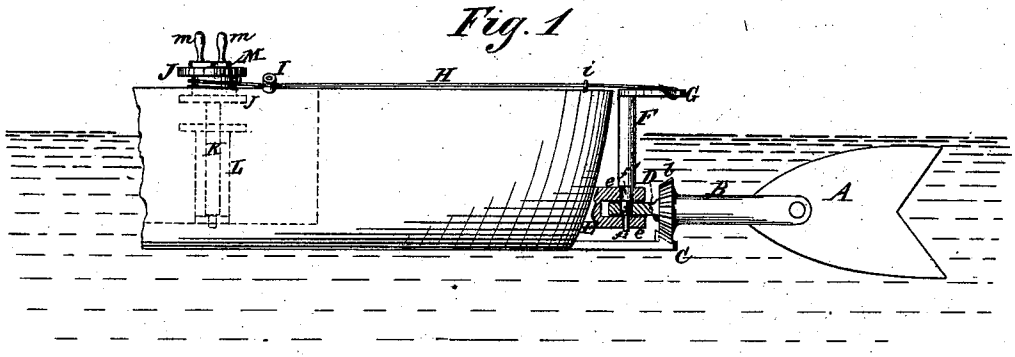


Fig. 2

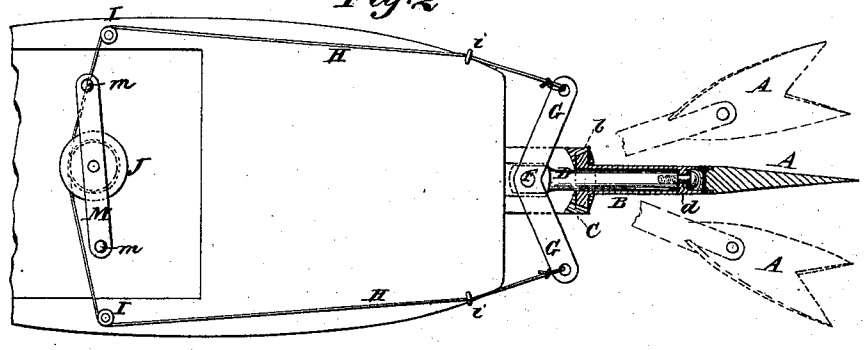
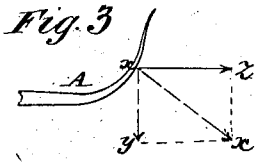


Fig. 3



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UNITED STATES PATENT OFFICE.

THOMAS J. COULTER, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO HIMSELF AND EDWARD A. HOUSMAN, OF DANBURY, CONNECTICUT.

SCULLING-PROPELLER FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 227,491, dated May 11, 1880.

Application filed February 17, 1880.

To all whom it may concern:

Be it known that I, THOMAS J. COULTER, of Elizabeth, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Sculling-Propellers for Boats, of which the following is a specification.

My invention has for its object to provide a simple and convenient sculling device applicable to boats, and by whose use a boat may be propelled forward with greater rapidity and with less exertion of power than by the old way of turning the oar with the hands directly.

The invention consists in a flexible and elastic oar blade or paddle provided with an axial sleeve swiveled upon a horizontal shaft, which latter is fixed at one end to a vertically-pivoted post, so as to be oscillated with the said post laterally, the turning of the oar upon its horizontal shaft during oscillation of the latter being effected by a cog wheel or segment on the said loose sleeve gearing into a stationary horizontal cog-segment, as will be hereinafter more fully described.

In the accompanying drawings, Figure 1 represents a side view of my improved boat-sculling attachment. Fig. 2 is a top view of the same. Fig. 3 is an explanatory detail.

Similar letters of reference indicate like parts.

A is the oar or paddle. To this is secured at *a*, in axial line with the oar-blade, a tube or sleeve, B, surrounded wholly or partly at its forward end with a cog wheel or segment, *b*, which, when the apparatus is in working position, meshes into the teeth of a stationary cog-segment, C, secured by a bracket or otherwise to the stern of the boat.

The teeth of the segments *b* and C should, preferably, be beveled, as shown in the drawings.

The sleeve B is fitted to turn upon a shaft, D, whose inner or rear end is fastened by a swivel-joint at *d* in the sleeve B, to prevent the latter from sliding off.

The forward end of the shaft D is flattened to fit in the opening or jaw between two lugs, *e*, of the bracket E, attached to the stern of the boat, and has a square hole through it to receive and fit tightly upon the square part *f* of the vertical post F, which latter is pivoted in the lugs *e*, above and below the forward end of shaft D, in holes suitable to fit, respectively, the upper journal, *f'*, of diameter equal to the diagonal of the square *f*, and the lower journal, f^2, of diameter equal to the side of the square *f*.

To the upper end of the post F are secured, on opposite sides, two horizontal arms, G, which may be made in one piece, as shown in the drawings, and which afford leverage to turn the post F more or less in its bearings, in order to oscillate the shaft D (and with it the oar) horizontally, while at the same time the cog-wheel *b* is rolled upon the stationary segment C, and thereby turns the sleeve B upon the shaft D, to oscillate the oar-blade horizontally or upon its axis, and thus produce the desired sculling motion.

To increase the effect of the sculling in producing greater speed, the oar blade or paddle should be made of rubber or other flexible and elastic material, which, when bent by the rapid lateral oscillation, expands in a manner similar to the tail of a fish when swimming. This is illustrated in Fig. 3, where, if the power and direction of the expansive force are measured by the arrow line *x x*, the forward propelling force will be equal to *x z*, while *x y* represents the lost portion of the force.

The apparatus may be operated by connecting the ends of the levers G, by means of cords H, (guided by loops *i* and pulleys I,) to a drum, J, mounted on a vertical shaft, K, journaled in a frame, L, in the boat, and oscillating the drum J by the handles *m* upon the ends of the cross-bar M, attached to said drum J, or in some other suitable manner, by hand or machine power.

I am aware that the idea of giving the sculling movements to oars by means of machinery is not new, an instance being shown in Patent No. 12,446, of 1855.

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

The oar blade or paddle A, provided with

the axial sleeve B, having cog wheel or segment *b*, and swiveled upon the horizontal shaft D, in combination with the upright turning post F, securable to the forward end of the said shaft D, and the stationary cog-segment C, substantially as and for the purpose set forth.

The above specification of my invention signed by me this 7th day of April, 1879.

T. J. COULTER.

Witnesses:
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