

J. W. BROWN.
Vibrating-Propeller.

No. 215,432.

Patented May 20, 1879.

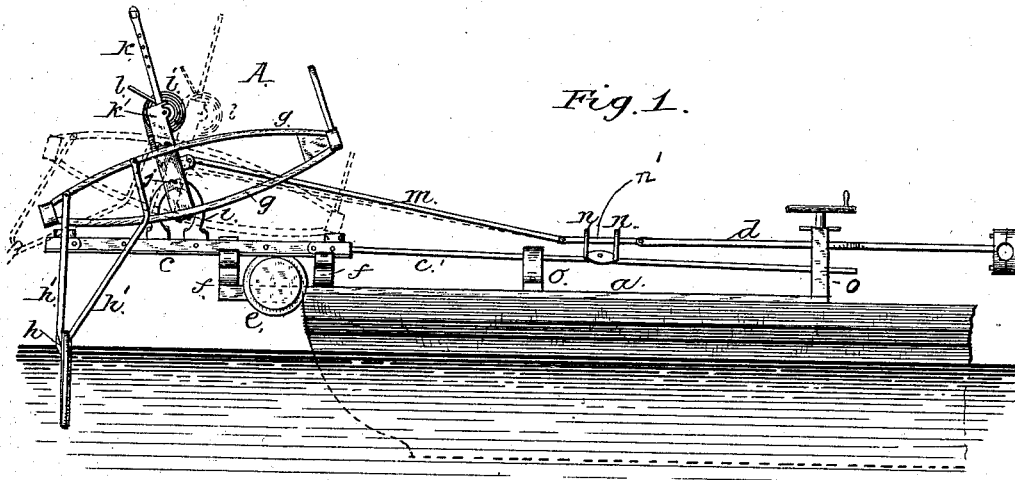


Fig. 2.

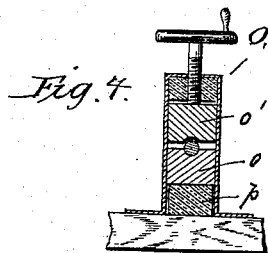
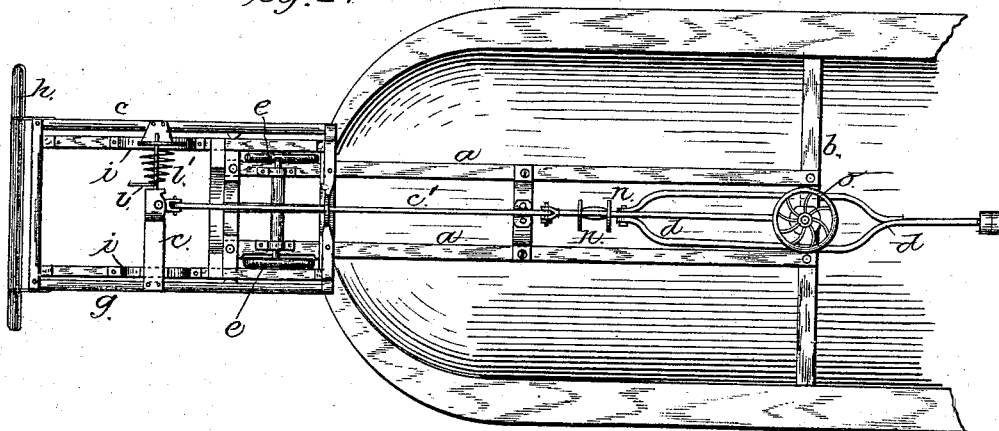


Fig. 4.

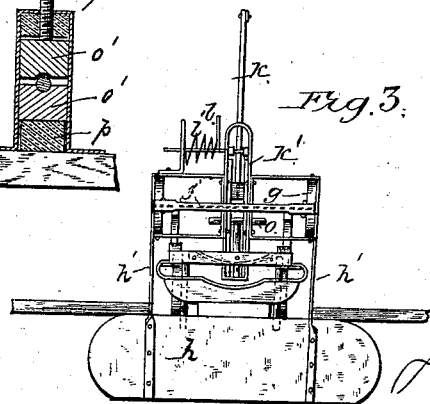


Fig. 3.

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IMPROVEMENT IN VIBRATING PROPELLERS.

Specification forming part of Letters Patent No. **215,432**, dated May 20, 1879; application filed April 22, 1879.

To all whom it may concern:

Be it known that I, JAMES W. BROWN, of Mayfield, in the county of Graves and State of Kentucky, have invented certain new and useful Improvements in Vibrating Propellers for Vessels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to apparatus for propelling vessels; and consists in certain novel features of construction, whereby the power applied to the propeller is rendered more effective than heretofore, and the propeller is above the water at a proper height for the propulsive part to strike in the water and make its strokes.

In the accompanying drawings, Figure 1 is a side elevation of my improved apparatus. Fig. 2 is a plan view. Fig. 3 is an end view. Fig. 4 is a detail.

Similar letters of reference indicate the corresponding parts of each apparatus.

The propelling apparatus may be placed upon the floor of the boat at the stern, projecting a few feet, or may be placed upon overhanging guards at the sides. The drawings show the parts as constructed for a stern propeller, single. The apparatus is shown complete, except the windlass, which is old, but may be used for the purpose of raising the rod to reverse the movement of the vessel.

a a are the longitudinal, and *b b* the cross, timbers, upon which the apparatus is supported and works. *c c* is the carriage, and *c'* the extension-rod, driven by a rod, *d*, from a crank upon a shaft revolved by the power. *e e* are stationary wheels, upon which the carriage *c* reciprocates. *f f* are keepers to hold the carriage upon the wheels *e*. *g* is the elevator. *h* is the propulsive part, which I will call the "oar," and *h' h'* are the oar-arms. *i i* are bearings, upon which the frame or elevator *g* operates or rocks. It is so constructed that when the power is applied the oar has two different motions, which are vertical and horizontal. It first descends, causing the oar

h to take down in the water; then it is conveyed by the carriage *c* horizontally, producing its propulsive effect. When at the length of stroke the power instantly acts upon the vertical guide-rod *k* and causes the elevator *g* to ascend, elevating the oar *h* above the water; then it makes its return movement.

j is an axle. *k* is a vertical guide-rod. *l* is a bolt-pin having a coil-spring attached. *m* is the reversing-rod. *n n* are guides and coupling. *o o* are guides for the rod *c*. In the head-guide *o* there are movable bearings *o' o'*, placed and seated upon a rubber seat, *p*. There is a tension-wheel and screw upon the guide *o*.

One, two, or more propellers, *A*, may be fitted for reciprocation side by side at the stern, or one at each side upon the guards of a vessel.

The following description applies to the different parts of the propeller *A*: The longitudinal timbers *a a* and cross-timbers *b b* are the main supporting-timbers for the apparatus. The carriage *c* is a frame made of wood, having plate metal around the corners, also upon the inside, and beneath the edges of which project flanges, which slide in the ends of the keepers *f f*. It also has blocks of rubber placed upon each corner, for the purpose of relieving the shock of the elevator *g* when in motion. The elevator *g* is made of wood, the side pieces of which are sprung and connected at the ends with the end pieces by bolts and a metal elbow, allowing the rod *m* to operate clear, and it (the elevator) is balanced upon the bearings *i i*, with metal in two corners. The oar *h* is made of wood, having round ends, and is fastened in the supporting-arms *h' h'* by bolts or screws and nuts. The arms *h' h'* are bars of metal, formed with prongs, which brace the oar *h* substantially, and are bolted to the sides of elevator *g*. These arms have holes to gage the oar *h*, and are bolted to the side pieces of the elevator *g*. *i i* are cast-metal bearings, formed in a bracing manner, and fastened upon the carriage *c* by bolts. *j* is an axle having collars upon each end between the bearings *i i* and elevator *g*. *k* is a vertical guide, made of metal, and formed with edges turned inward, which form guides for the guide-rod *k*. The guide-rod *k* has lugs for the reception of rod *m*. The coil-spring *l* is attached to the

bolt-pin *l*, for the purpose of forcing it in the guide-tubes *k' k'* when the rod *k* is raised or lowered, and the holes which are through rod *k* come in line with tubes *k' k'*. The bolt *l* enters and is held firm by the spring *l'*. The rod *m* is coupled to the rod *d* by a coupling-rod, *n'*. The rod *n'* moves a few inches in the guides *n n* at each stroke. The guides *n n* are connected and fastened upon rod *c*. The head-guide *o* is made of metal, cast with grooves, to hold the bearings *o' o'*, which are placed in the guide *o* and seated upon a rubber seat, *p*. The guides *o o* are to be manufactured of Babbitt metal.

The operation of my propeller is as follows: When it is desired to propel the boat forward, the slide *k* is lifted until the rod *m* engages with the rocking frame or elevator above the pivot *j*. Then when rod *d* is pushed toward the stern it will immediately rock the frame or elevator *g* on the pivot *j'* and bring the oar into the water. As rod *d* is pushed still farther to the rear, the frame *g*, having rocked to the limit of its rocking motion, will move astern, taking the frame *c* along with it. After the completion of the stroke the reversal of the movement of the driving-rod first rocks the frame *g* and lifts the oar out of the water, and then draws the frame and its carriage back again to make a new stroke. To reverse the movement, the slide *k* is lowered until the rod *m* connects with the frame *g* at a point below

the pivot *j*, when the oar will engage the water as it moves forward and ride above the water in moving astern.

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

1. The combination, with the sliding frame *c*, of rocking frame *g*, mounted thereon and carrying the oar, all to operate substantially as described.

2. The combination, in a propeller, of the carriage *c*, the rocking elevator *g*, the oar *h*, arms *h' h'*, bearings *i i*, axle *j'*, and carriage-rod *c'*, substantially as and for the purpose set forth.

3. The combination of the vertical guide-way *k'*, guide-rod *k*, and bolt-pin *l*, having spring *l'*, substantially as and for the purpose set forth.

4. The combination, with a propeller, substantially as shown, of the guide *o*, having grooves for bearings *o'* upon seat *p*, and the guides *n n* upon rod *c'*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JAMES W. BROWN.

Witnesses:

W. T. JOHNSON,
S. S. KIRK.