

J. L. NEVERS.
Vibrating Propeller.

No. 218,766.

Patented Aug. 19, 1879.

Fig. 1.

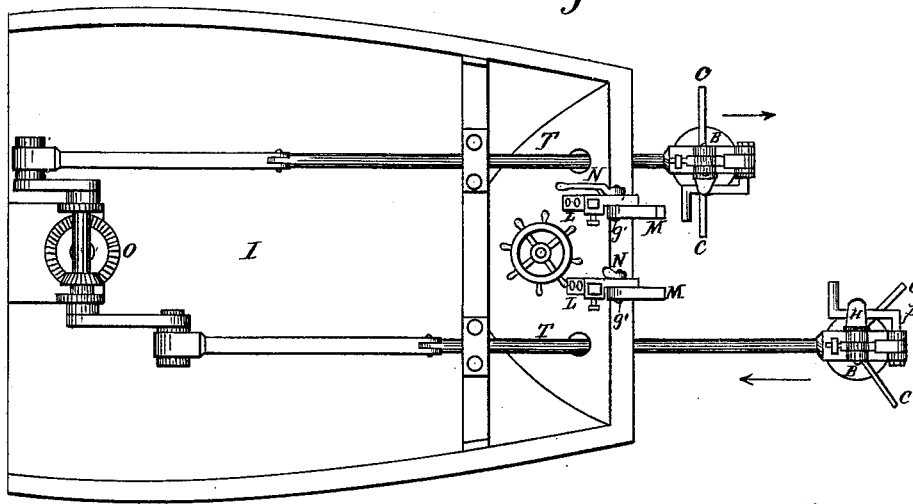


Fig. 2.

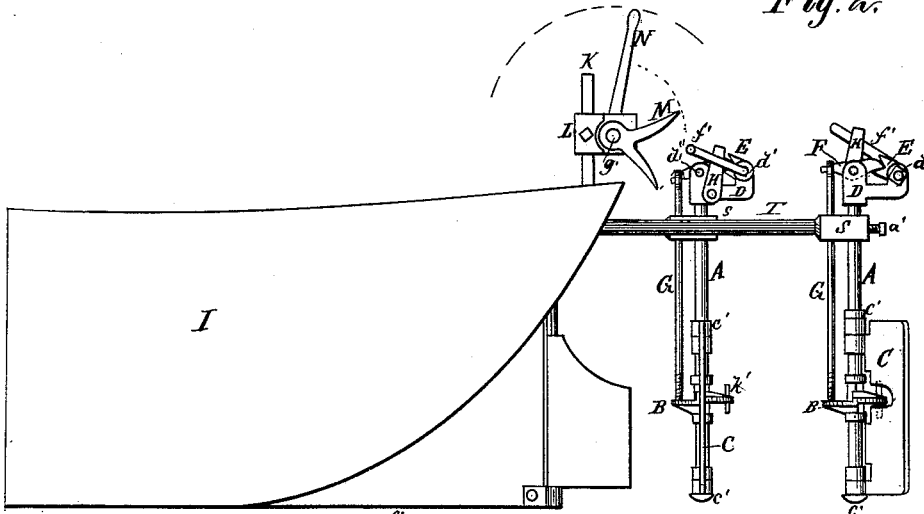


Fig. 3.

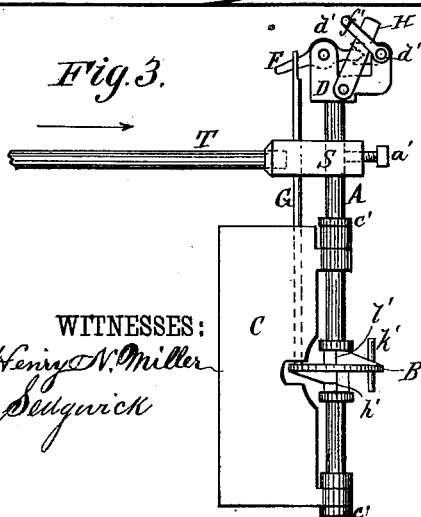


Fig. 4.



Fig. 5.

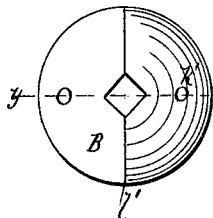
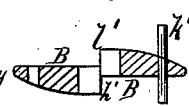


Fig. 6.



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JEAN L. NEVERS, OF PASS CHRISTIAN, MISSISSIPPI.

IMPROVEMENT IN VIBRATING PROPELLERS.

Specification forming part of Letters Patent No. **218,766**, dated August 19, 1879; application filed May 9, 1879.

To all whom it may concern:

Be it known that I, JEAN LOUIS NEVERS, of Pass Christian, in the county of Harrison and State of Mississippi, have invented a new and Improved Vibrating Propeller, of which the following is a specification.

Figure 1 is a plan of the propeller attached to a boat. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation of one propeller complete with its working parts. Fig. 4 is an elevation of the vertical shaft. Fig. 5 is a plan of the wheel or disk that limits and controls the movements of the propeller-blades. Fig. 6 is a transverse section of the same on line *x x*.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide a simple, adjustable, and most powerful propeller, by which a boat may be made to go forward or backward or to turn readily in any direction.

The invention consists of the shaft A, depending perpendicularly down through and secured and vertically adjustable in the head-block S on the end of the pitman T. This shaft may be raised or lowered at will to any position, and so held by turning the set-screw *a'* against its square section in the block S.

The lower portion of the shaft is round, and carries, vertically adjustable upon its square shoulder *b'*, the disk or wheel B, of oval cross-section and ridged or shouldered faces, said shoulders running across the faces at right angles to the pitman.

Hinged on the lower part of the shaft, and kept in position by the collars *c' c'*, are the rectangular propeller-blades C C, that are cut away at their centers to fit over and conform to the wheel B.

The forked head-piece D, that is rigidly secured to the upper end of the shaft A, has four upward-projecting lugs, *d' d'*, through the two rearmost of which the horizontal crank-shaft *f'* passes, supporting between the lugs the forked cam E.

Pivoted between the two forward lugs is the lever F, one end of which rests in the fork of the cam E, while the other is attached to the adjusting-rod G, that extends downward

through the head-block S, and is connected at its lower end with the disk or wheel B.

H is intended to represent a notched or toothed spring, whose function is to hold the handle of the crank-shaft *f'* in position while the mechanism is in operation.

Secured upon the stern-rail of the boat I, on either side of the stern-post, are the two standards K K, on which are held, by set-screws or other equivalent device, the vertically-adjustable blocks L L. On one side of each block is a V-shaped cam, M, and on the other side a handle, N, which are held in position and connected with each other by the pin *g'*, that passes horizontally through the block.

Within the boat, in suitable position, is the driving mechanism O, which may consist of an engine of any style suited to the work, and this engine causes the pitmen to move with a horizontal and reciprocating movement, so that the propellers, that are suspended at right angles from them, shall be moved back and forward in lines parallel with the keel of the boat.

When it is desired to propel the boat forward, the elevation of the crank-handle *f'* causes the forked cam E to lift the free end of the lever F and depress the rod G, to which is secured the wheel B, so that said wheel shall be passed down to the lowest limit of its range. During this operation the propeller-blades C C are set back, as shown in the case of the port propeller Fig. 1. Then, when a forward motion is given to the propellers, the blades will be swung back by the resistance of the water to the position shown in port propeller, Fig. 2, against the pin *k*, which prevents their contact with each other, while on the reverse stroke the blades will spread and hold at right angles to the line of direction, and force against the lower shoulders, *h' h'*, of the wheels B B, and thus give a forward movement to the boat.

When it is desired to move the boat astern, the rod G is elevated by means of the crank-handle *f'* and the wheel B raised to its extreme limit, so that the upper shoulders, *l' l'*, shall oppose resistance to the backward folding of the blades and hold them spread open on the forward motion of the propeller. Thus

it will be seen that the motion of the propeller-blades, and the consequent motion of the boat, can be reversed at any moment without reversal of the engine; and it is evident that the boat can be quickly turned by arranging one propeller so that it will tend to pull the boat astern, while the other tends to impel it forward.

When the device is in operation, the blocks L L are adjusted on the standards K K so that the jaws of the cams M M shall be on a level with the handles $f' f'$ of the crank-shafts, and the cam is held in about the position shown in Fig. 2 when it is not desirable to change the direction of the propeller-blades, so that the handles $f' f'$ may, in their backward and forward movements, enter the jaws without coming in contact with them; but should it become desirable to change the direction of the blades the cams are adjusted by the handles N N in such a manner, inclined upward or downward, that the handles $f' f'$ of the cranks will on the next forward stroke engage against the inner slopes of the upper or lower jaws, as the case may be, and cause the consequent elevation or depression of the wheels B and the desired change in the position and effect of the blades.

Thus it will be seen that the change of direction is always under the immediate control of the person who has charge of the devices that are set inboard near the steering-wheel, and that, though the motion of the engine may not cease, the positions of the blades can readily be so changed at each stroke that they will exert no force upon the water.

The propeller-blades need not necessarily be rectangular in outline, as herein shown, nor do I confine myself to the precise construction of parts as shown in the drawings, as I have purposed in this to exhibit the device and its working parts in the most simple form rather than in the precise manner in which it would be applicable to a vessel.

It must be obvious that it is of great advantage to be able, as herein shown, to raise or lower the propeller-blades, so as to make them equally effective in a heavy sea and shallow water, and to adjust them at will to suit the changing draft of the vessel.

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

1. The combination of the perpendicular shaft A, head-block S, pitman T, wheel B, collars $c' c'$, and propeller-blades C C, substantially as herein shown and described.

2. The combination of forked head-piece D, provided with lugs $d' d'$, crank-shaft $f' f'$, cam E, lever F, rod G, and spring H, with the wheel B and propeller-blades C C, substantially as and for the purpose described.

3. The combination of the standard K, block L, cam M, handle N, and pin g' with crank-shaft $f' f'$, rod G', and propeller-blades C C, substantially as herein shown and described.

JEAN LOUIS NEVERS.

Witnesses:

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