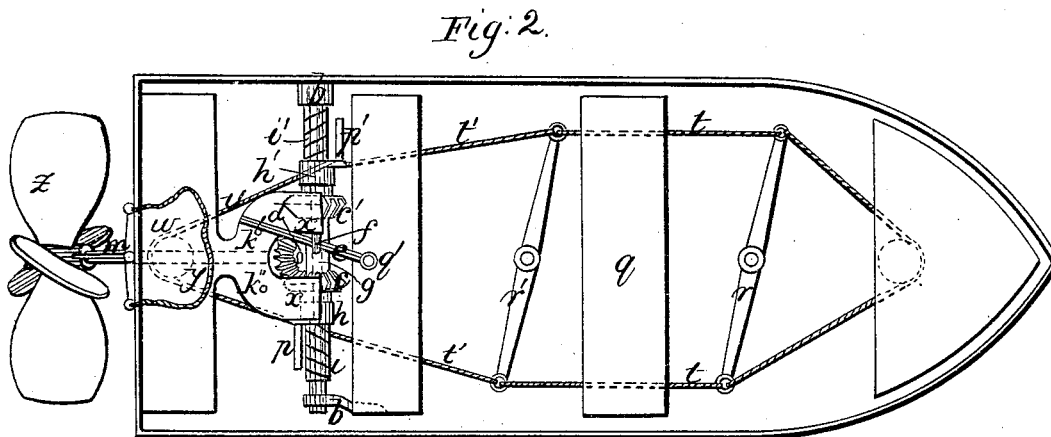
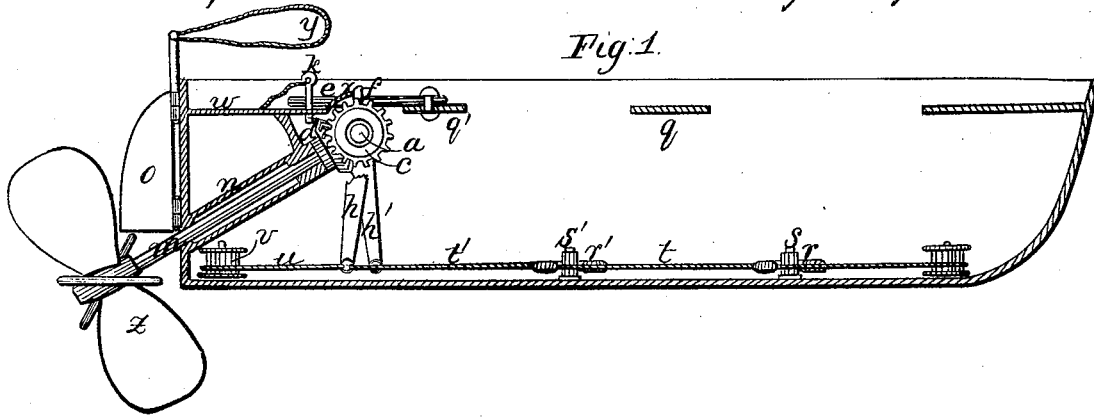


J. Repetti.
Screw Propeller.
No 111,681. Patented Feb. 7, 1871.



Witnesses

J. Rankin
A. Smyth

Inventor.

Joseph Repetti
Per his atty.

Charles S. Whitman.

United States Patent Office.

JOSEPH REPETTI, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 111,681, dated February 7, 1871; antedated February 4, 1871.

IMPROVEMENT IN PROPELLING APPARATUS FOR BOATS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, JOSEPH REPETTI, of Philadelphia, in the county of Philadelphia and in the State of Pennsylvania, have invented certain new and useful Improvements in Propelling Apparatus for Boats; and do hereby declare that the following description, taken in connection with the accompanying drawing hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent.

Figure 1 of the accompanying drawing represents a vertical longitudinal section of the apparatus as applied to a boat; and

Figure 2 a plan of the same.

The principal points of novelty in my invention consist in the application of helical springs to the driving-shaft for the purpose of converting an oscillating motion into an intermittent revolving one; in passing the propeller-shaft through an inclined tube, for the purpose of dispensing with a stuffing-box; and in the general arrangement of the parts, as will hereafter be described.

The driving-shaft *a* revolves in bearings, *b b*, and is capable of sliding therein longitudinally.

Upon this shaft are fastened the bevel-wheels *c c'*, either of which may be brought into gear with the wheel *d* on the propeller-shaft *m*, by means of the lever *e*, which passes through the eye *f* on the sleeve *g*.

This sleeve *g* fits loosely over the shaft *a*, and just fills the space between the wheels *c c'*; the wheels thus act as fast collars, so that any longitudinal motion communicated to them is transferred to the shaft *a*.

The lever *h* and spring *i* are fastened together, as are also the lever *h'* and spring *i'*.

The levers *h* and *h'* oscillate loosely on the shaft *a* in either direction, but the springs *i i'* revolve loosely only in one direction.

Each forward stroke of either lever contracts the convolutions of its spring, which, therefore, takes firm hold of the shaft *a* and revolves it to the extent of the motion given by the lever; on the return stroke of the latter the convolutions of the spring expand and the shaft *a* is left free.

The object of providing the shaft *a* with two springs, two levers, and two wheels is, first, to make the motion more continuous, and second, to secure a means by which to reverse the motion of the propeller *z*.

The reversion is accomplished by moving the shaft *a* longitudinally, as before described, until the other wheel comes in contact with the wheel *d*.

For the purpose of keeping the wheels in proper position a pin, *k*, is put against the lever *e*, as shown in fig. 1; the holes for the pin *k* are represented in fig. 2, *k'* being used when the wheel *c* is to gear with *d*, and the hole *k''* when *c'* is to drive the propeller.

The guards *x x* prevent the clothing, &c., of the operator from being caught between the gears *d*, *c*, and *c'*.

The propeller-shaft passes through the inclined water-tight tube *n* and carries the wheel *d* at its upper end.

The upper end of the tube *n* should always be above the water-line, so that any water that may pass into the tube at the lower end will not run into the boat.

The levers *h h'* are provided at their lower extremity with pins, *p p'*, by means of which they may be operated by the feet of the person desirous of moving the boat.

In order that several persons may participate in the labor of propelling the boat the benches *q q'* are provided, on which such operators may sit and impart with their feet an oscillating motion to the levers *r r'*.

These levers vibrate on studs, *s s'*, fastened to the bottom of the boat.

As the levers *r r'* are connected with the levers *h h'* by cords *t t'*, it follows, that the motion of *r r'* is thereby communicated to *h h'*, and thus to the shaft *a*.

In order that the levers *h h'* may always move in opposite directions when they are actuated, they are connected at their extremity by the cord *u* passing around the loose pulley *v*.

The operation of the apparatus is as follows:

If one operator desires to propel the boat he takes his seat upon the bench *w*, puts a foot on each of the pins *p p'*, and gives to them a reciprocating, which produces an intermittent revolving motion at the propeller.

By means of the lever *e* he regulates the back or forward motion of the boat, and with his hands he operates the rudder by means of the cord *y*.

Any additional operators seat themselves upon the benches *q q'*, and by giving an oscillating motion to the levers *r r'* with their feet help to propel the boat in the manner before described.

I do not claim as my invention the spiral springs *i i'*, abstractly, nor the idea of reversing motion by means of bevel-wheels; but

What I claim is—

1. The combination of the helical springs *i i'* with the shaft *a*, wheels *c c'*, wheels *d*, and propeller-shaft *m*, and propeller *z*, substantially as and for the purpose set forth.

2. The combination of the levers *h h'* with the heli-

cal springs *i i'*, shaft *a*, wheels *c c'*, wheel *d*, propeller-shaft *m*, and propeller *z*, substantially as and for the purpose specified.

3. The arrangement of the propeller-shaft *m*, inclined tube *n*, propeller *z*, and wheel *d*, substantially as and for the purpose set forth.

4. The combination of the lever *e*, eye *f*, sleeve *g*, and pin *k*, substantially as and for the purpose set forth.

5. The combination of the levers *r r'*, cords *t t'*,

cord *u*, pulley *v*, pins *p p'*, and levers *h h'*, substantially as and for the purpose specified.

6. The arrangement of the bench *w*, guards *x x*, benches *q q'*, levers *h h'*, and *r r'*, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this day of May, 1870.

Witnesses:

JOSEPH REPETTI.

J. PLANKINTON,

A. SINZHEIMER.