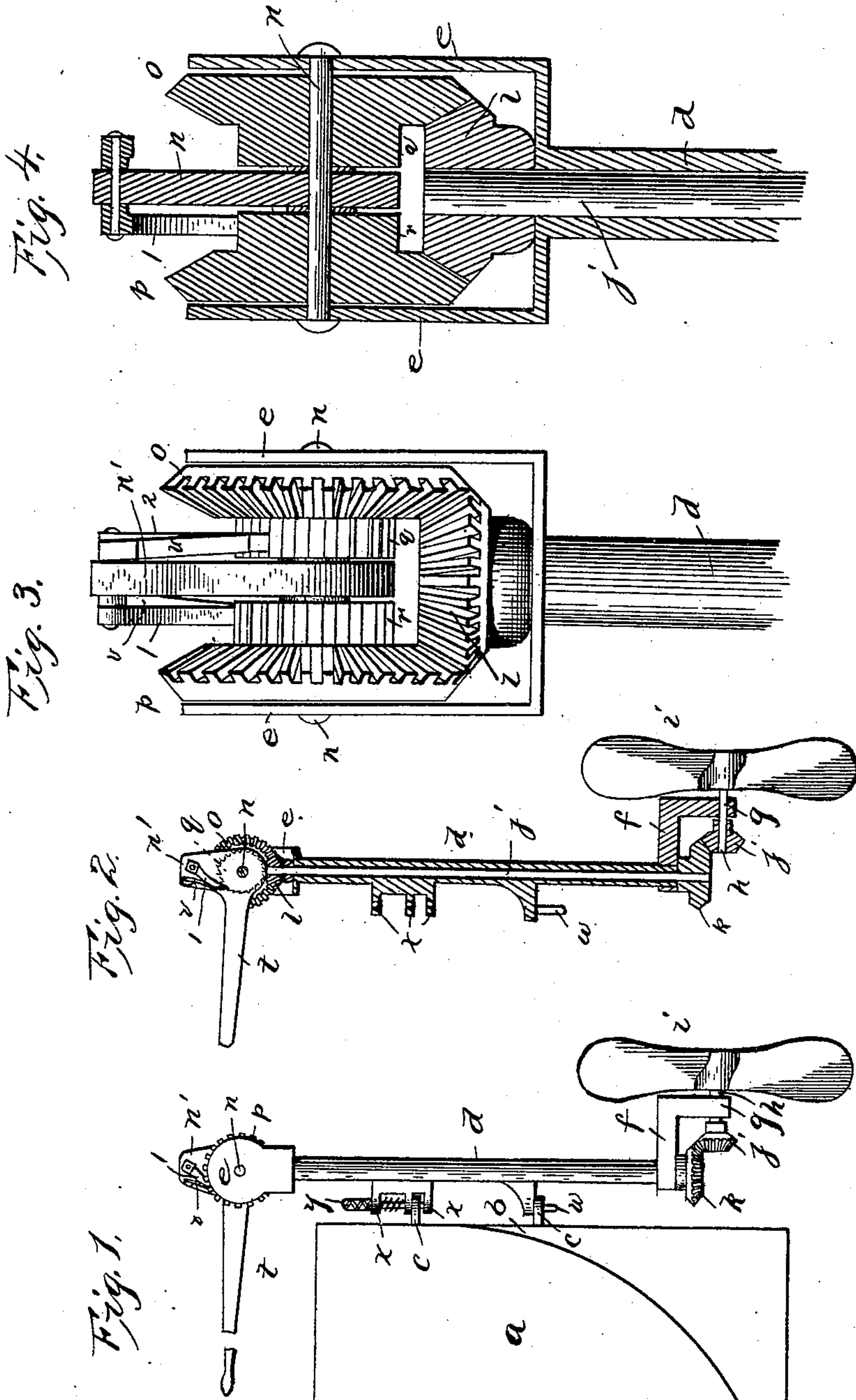


(No Model.)

J. W. WILLIAMS.
PROPELLING AND STEERING BOATS.

No. 464,408.

Patented Dec. 1, 1891.



WITNESSES:

E. E. Duff
H. E. Peak

INVENTOR

John W. Williams

BY

E. E. Duff

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN WESLY WILLIAMS, OF PORTSMOUTH, ASSIGNOR OF ONE-HALF TO
ALFONSO MERCER, OF BRAMBLETON, VIRGINIA.

PROPELLING AND STEERING BOATS.

SPECIFICATION forming part of Letters Patent No. 464,408, dated December 1, 1891.

Application filed April 8, 1891. Serial No. 388,132. (No model.)

To all whom it may concern:

Be it known that I, JOHN WESLY WILLIAMS, of Portsmouth, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Propelling and Steering Boats; 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 the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in devices for propelling and steering boats.

The object of the invention is to provide an improved simple, cheap, and durable device which can be applied to any boat and can be easily operated for propelling and steering the same and which combines in one apparatus propelling and steering means.

The further object is to provide a screw-propeller and hand-operating means therefor which can be easily and quickly applied to or detached from a boat.

These objects are accomplished by, and this invention consists in, certain novel features of construction and in combinations of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is an elevation of the stern of a boat having the present invention applied thereto. Fig. 2 is a sectional view of the driving and steering mechanism. Fig. 3 is an end view of the gearing for continuously rotating the drive-shaft. Fig. 4 is a section of said gearing.

In the accompanying drawings, *a* indicates the stern of the boat, having the rudder-post *b*.

c are the bearings, formed by horizontal eyes, loops, or any other suitable means secured to and projecting horizontally from the outer edge of the rudder-post.

d indicates the strong straight tubular frame or post, preferably constructed of metal and of the length to extend, preferably, above the rudder-post of the boat, open at its upper and lower ends, and at its upper end provided with bifurcated frame *e*, comprising

two vertical sides, and at its lower end provided with the strong heavy right-angle piece *f*, extending horizontally and rearwardly from the lower end of the tubular post and then downwardly at or substantially at right angles, and at its lower end provided with horizontal bearing *g*. The propeller-shaft *h* is mounted in and projecting through this bearing *g*, and at its outer end is provided with the suitable screw-propeller *i*, rigidly mounted thereto, with its hub bearing against outside of said angle piece or arm and at its inner end provided with the small beveled pinion *j*, with its hub bearing against inner side of said angle piece or arm. A vertical drive-shaft *j'* extends through and is mounted in the tubular post and on its lower end is provided with a bevel or gear *k*, meshing with said beveled pinion on the propeller-shaft, and on its upper end is provided with a beveled pinion *l*, located in the lower portion of the bifurcated frame on the upper end of the tubular post, the hubs of the beveled gearing on the opposite ends of said vertical drive-shaft preventing vertical play of said drive-shaft in the tubular post. A horizontal shaft *n* extends through and is mounted in the bifurcated frame on the upper end of the tubular post and the pair of facing beveled gears *o p* are in a frame on said horizontal shaft meshing with said beveled pinion on the upper end of the vertical drive-shaft. The gears *o p* have rigid with their inner ends ratchet-wheels *q r*, respectively, having their teeth facing in opposite directions.

The combined operating lever and tiller *t* is provided with the handle at its outer end and at its opposite end is loosely mounted on the said horizontal shaft *n* snugly between the ratchet-wheels, to swing freely between independent of the same. This lever has an arm *n'* extending up from pivoted end, and on opposite sides thereof is provided with pawls *1 2*, pivoted thereto to respectively engage the two ratchet-wheels, each pawl having a spring *v* to hold it in engagement with its respective ratchet-wheel. The two ratchet-wheels have their teeth oppositely arranged, respectively. The two pawls which rotate the same are oppositely arranged, so that

when the operating-lever is swung one pawl will engage and rotate its ratchet-wheel, while the other pawl will loosely run over its ratchet-wheel. The ratchet-wheel rotated will
 5 rotate its beveled gear, which will rotate the drive-shaft and propeller in a direction to force the boat forward. When the operating-lever is moved in the opposite direction, the said last-mentioned pawl will rotate its
 10 ratchet-wheel and gear in the direction opposite to the other ratchet-wheel and gear, and will thereby continue to rotate the drive-shaft and screw in the same direction, as the two opposite beveled gears are on and engage opposite
 15 sides of the pinion on the upper end of the drive-shaft and consequently drive it in the same direction. The operating-lever which also constitutes the tiller is of sufficient length to extend into the stern of the boat, so that
 20 it can be easily swung up and down or laterally by the person located therein.

The tubular post on the edge opposite the angle-arm supporting the propeller-shaft is provided with suitable journals or hooks *w*,
 25 to enter bearings or eyes on the rudder-post, so that these journals can be dropped into said horizontal bearings, allowing the tubular post and propeller to swing laterally freely, so as to direct the propeller to any suitable
 30 angle, so as to steer the boat. The upper clevis *x* of the tubular post is preferably provided with a spring-bolt *y*, to detachably secure the clevis to the bearing-eye of the rudder-post. By this means the operating-lever
 35 extending above stern of the boat can be swung laterally at any suitable angle while being operated up and down, thereby moving the propeller laterally, so as to steer the boat in the desired direction.

40 It is obvious that any suitable means can be employed for securing this device to the boat to freely swing laterally, and I do not limit myself to the peculiar hinging or connecting means herein shown, as this is simply the ordinary manner of mounting a rudder
 45 to the rudder-post.

The great utility and extreme simplicity of this invention are obvious. It can be applied easily and quickly to any boat of similar size,
 50 and can be easily operated to propel and steer the boat without the use of the rudder. Of course, any power can be employed to rotate drive-shaft.

The invention can be manufactured and
 55 sold separately and applied to any boat and can be easily and quickly detached therefrom, when it is desired to employ an ordinary rudder or other propelling means.

It is obvious that various changes might be
 60 made in the form, construction, and arrangement of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the peculiar construction herein set forth; but
 65 What I claim is—

1. A propelling mechanism for boats, comprising the tubular post having angle-arm

at its lower end, the short propeller-shaft mounted in said angle-arm, a propeller on one end thereof, the shaft extending through
 70 said post having a gear on its lower end meshing with said propeller-shaft gear, a gear on its opposite end, and gearing carried by the upper end of the post to continuously rotate said shaft in the same direction. 75

2. In the propelling or steering mechanism, the combination of vertical post provided with means to hinge the same to the stern of a boat, the horizontal propeller-shaft supported from the lower end of said post, a drive-shaft extending through the post, gearing connecting said drive-shaft and propeller-shaft, the opposite beveled gears in the frame at the upper end of said post engaging opposite sides to said shaft-gearing, said beveled gears provided with the opposite ratchet-wheels, and the lever having opposite pawls to engage said opposite ratchet-wheels and thereby rotate said beveled gears in opposite directions and continuously rotate the drive-shaft in the
 80 same direction. 85 90

3. The combination, with the boat, of the propelling and steering mechanism hinged to the stern thereof and comprising a vertical drive-shaft and support therefor hinged to the
 95 boat, the propeller and its shaft carried by said support, and pawl-and-ratchet mechanism carried by the upper end of said support to continuously rotate said drive-shaft in the same direction, and a lever extending from
 100 the stern of the boat to operate said pawl-and-ratchet mechanism and to control the lateral swing of the propelling and steering mechanism.

4. A propelling and steering device consisting of the vertical tubular post provided with exterior means for mounting such post to swing laterally at the stern of a boat, the horizontal propeller-shaft mounted at and carried by the lower end of such post and provided
 105 with the propeller, the vertical shaft extending through and mounted in such post, gearing connecting such vertical shaft and the propeller-shaft, gearing carried by the upper end of such post to rotate such shaft, and
 110 means carried by such post to swing the same and actuate the gearing, substantially as described. 115

5. In combination, the vertical tubular post, means for hinging the same to a boat, the
 120 short horizontal propeller-shaft carried by lower end of said post and provided with propeller, the vertical shaft extending through and carried by such post and connected by gearing to rotate the propeller-shaft, the
 125 swinging lever extending laterally from and carried by the upper end of such post, and gearing connecting said lever and vertical shaft and arranged to rotate said shaft by the vertical swing of such lever, the angle of the
 130 propeller being directed by the lateral swing of such lever, substantially as described.

6. In combination, a boat, the vertical tubular post having lateral journals removably

5 mounted at the stern of the boat, so that said post can swing horizontally, the propeller and its shaft carried by lower end of post, the shaft extending through post and geared to rotate propeller, and the lever carried by upper end of post to swing the same horizontally and geared to rotate said shaft.

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

JOHN WESLY WILLIAMS.

Witnesses:

JNO. W. HAPPER,
G. F. EDWARDS.