Jan. 22, 1924. 1,481,512

G. C. KELLY

BOAT PROPELLER

Filed June 18, 1923 2 Sheets-Sheet 1

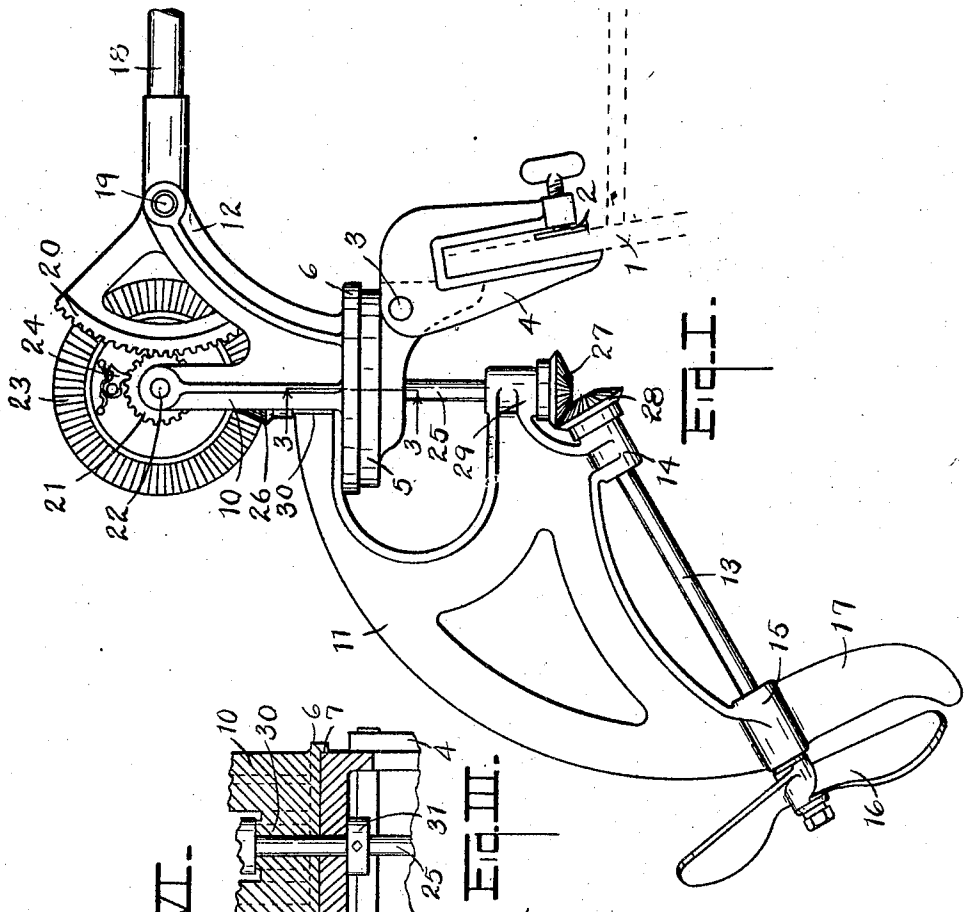


Fig. II.

Fig. III.

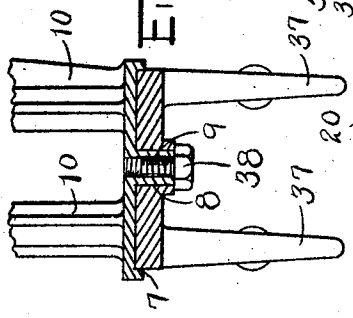


Fig. VI.

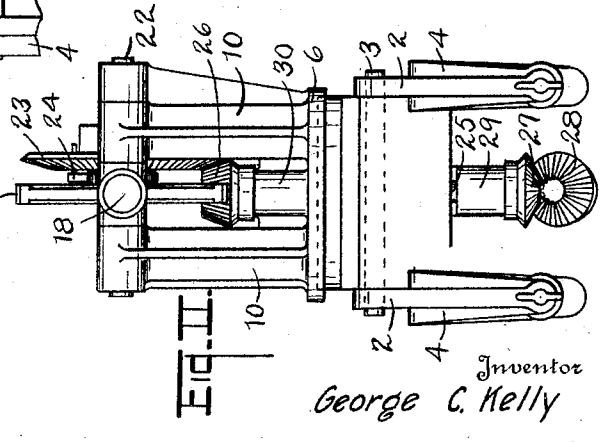


Fig. II.

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Fig. V.

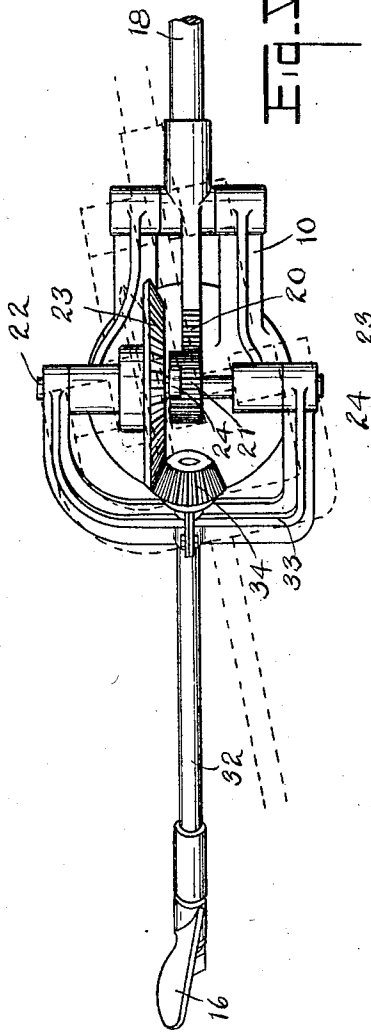
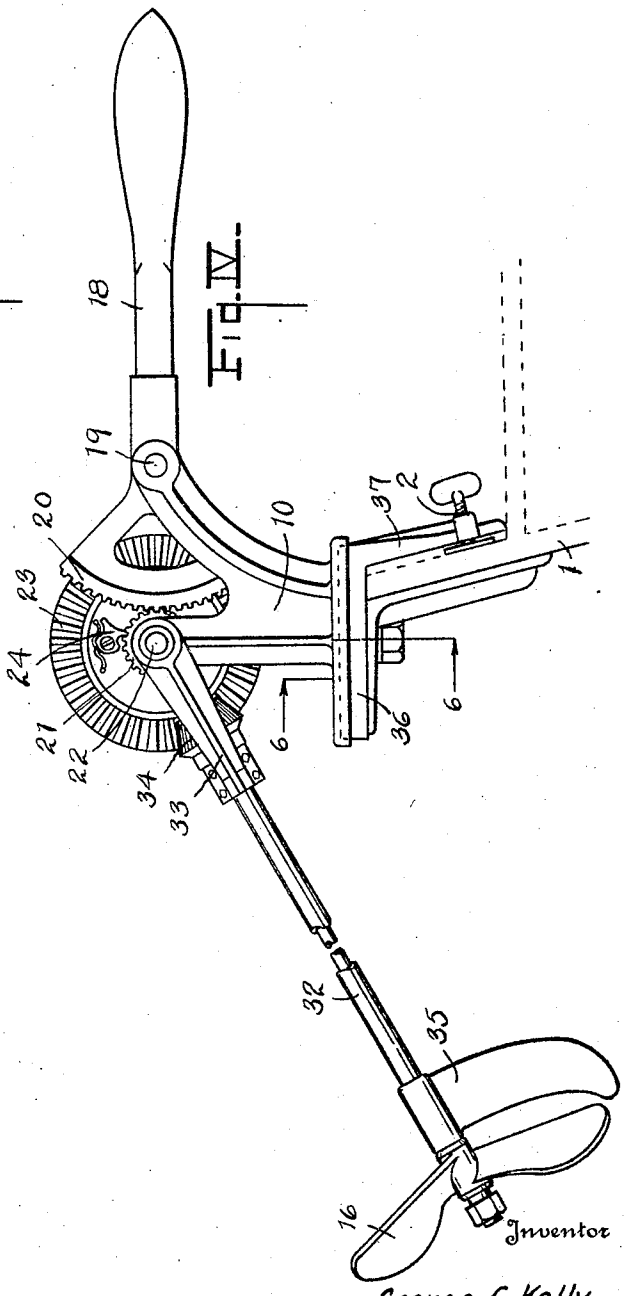


Fig. IV.



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Patented Jan. 22, 1924. 1,481,512

UNITED STATES PATENT OFFICE.

GEORGE C. KELLY, OF KALAMAZOO, MICHIGAN.

BOAT PROPELLER.

Application filed June 18, 1923. Serial No. 646,115.

To all whom it may concern:

Be it known that I, GEORGE C. KELLY, a citizen of the United States, residing in the city and county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Boat Propellers, of which the following is a specification.

This invention relates to improvements in boat propellers.

The main objects of the invention are:

First, to provide an improved manually operated propeller which may be attached to a row boat for driving and steering the same.

Second, to provide an improved manually operated row boat propeller which is comparatively easy to operate.

Third, to provide an improved manually operated row boat propeller which is compact in structure.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, forming a part of this application, in which:

Fig. I is a side elevation of one embodiment of my invention, the boat on which the propeller is mounted being indicated by dotted lines, the actuating or driving lever being partially broken away.

Fig. II is a front elevation of my improved propeller, the propeller supporting arm and shaft being omitted.

Fig. III is a detail vertical section on a line corresponding to line 3—3 of Fig. I.

Fig. IV is a side elevation of another embodiment of my invention, parts of the propeller shaft and its supporting arm being broken away.

Fig. V is a plan view of the embodiment shown in Fig. IV, the driving lever being partially broken away.

Fig. VI is a detail section on a line corresponding to line 6—6 of Fig. IV.

In the drawing similar reference numerals refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, 1 represents a row boat on which I have shown my improved propeller in operative relation. The base 1 is provided with attaching clamps 2, the clamps being preferably attached by means of the pivot 3, so that the base may swing forwardly, the base being provided with a downwardly projecting part 4 engaging the boat and limiting the rearward swing and supporting the base normally in a horizontal position. The base has a cylindrical bearing or table portion 5 on which the supporting frame, designated generally by the numeral 6, rests, the supporting frame having a corresponding bearing portion 7 rotatably engaging this base. The base has a central opening 8 therein to receive the bearing stud 9. The base is provided with a pair of vertical arms 10, a downwardly and rearwardly projecting propeller carrying arm 11, and a pair of upwardly and forwardly projecting arms 12.

The propeller shaft 13 is mounted in bearings 14 and 15 on the arm 11 and is provided with a propeller 16. The arm 11 has a rudder blade 17 projecting downwardly therefrom in front of the propeller. The actuating lever 18 is mounted on the arms 12 by means of the pivot 19 to be oscillated thereon or for swinging the frame 6, thereby swinging the rudder and also the propeller, the propeller itself acting as a rudder.

The lever 18 is provided with a driving segment 20 meshing with the driving gear 21 on the supporting shaft 22 carried by the arms 10. On this shaft 22 is a driven beveled gear 23 having a reversible driving pawl 24 thereon coacting with the driving gear 21 so that the gear 23 may be driven in either direction by the reversing of the pawl.

The propeller shaft is connected to this gear 23 by the transmission shaft 25 having a beveled gear 26 on its upper end meshing with the gear 23 and a beveled gear 27 on its lower end meshing with the gear 28 on the forward end of the propeller shaft.

The arm 11 is provided with a bearing 29 for the lower end of the shaft 25 while its upper end is supported by a bearing 30. The collar 31 holds the parts in assembled relation.

By pivoting upon the clamp the whole propeller may be tilted forwardly into the boat, if desired, when not in use or it may

be tilted forwardly to pass obstructions. The structure is easily operated and is strong and durable; is rigid even when comparatively light in weight.

In the modification shown in Figs. IV–VI inclusive the propeller supporting arm comprises the tubular part 32 carried by the yoke 33 mounted on the upright arms 10. In this embodiment a gear 34 meshes directly with the gear 23. The rudder 35 is a separate part mounted upon the arm 32 whereas in the embodiment previously described the rudder is formed as a part of the arm. In this embodiment I also omit the pivot connection for the base 36 to its supporting clamp 37; also the shaft 25 is omitted and the supporting frame is retained upon the base by means of the screw 38.

I have illustrated and described my improvements in two embodiments which I regard as very practical. I have not attempted to illustrate or describe certain other embodiments or adaptations which I contemplate as I believe the disclosure made will enable those skilled in the art to which this invention relates to embody or adapt the same as may be desired.

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

1. In a boat propeller, the combination of a base, clamps for attaching said base to the wall of a boat, said base being pivotally connected to the clamps for tilting movement and when attached to a boat being adapted to engage the boat limiting the outward tilting movement of the base, a frame rotatably mounted on said base and provided with a downwardly and rearwardly projecting propeller carrying arm, a pair of vertical shaft supporting arms and a pair of upwardly and forwardly projecting actuating lever supporting arms, a propeller shaft mounted on said propeller supporting arm and provided with a propeller at its outer end and a beveled gear at its inner end, a rudder blade at the lower end of said propeller supporting arm disposed in front of the propeller, a driving and steering lever mounted on said lever supporting arms and provided with a driving segment, a shaft mounted on said shaft supporting arms, a driving gear on said shaft coacting with said driving segment, a beveled gear on said shaft provided with a reversible pawl coacting with said driving gear, and a transmission shaft disposed vertically through said base member and axially of said frame and provided with a beveled gear at its upper end meshing with said driven gear and with a beveled gear at its lower end meshing with said beveled gear on said propeller shaft, said propeller supporting arm being provided with bearings for said propeller and transmission shaft disposed adjacent the ends thereof, said frame having a bearing for the upper end of said transmission shaft.

2. In a boat propeller, the combination of a base adapted for attachment to a boat, clamps for attaching said base to the wall of a boat, a frame rotatably mounted on said base and provided with a downwardly and rearwardly projecting propeller carrying arm, a pair of vertical shaft supporting arms and a pair of upwardly and forwardly projecting actuating lever supporting arms, a propeller shaft mounted on said propeller supporting arm and provided with a propeller at its outer end and a beveled gear at its inner end, a rudder blade at the lower end of said propeller supporting arm disposed in front of the propeller, a driving and steering lever mounted on said lever supporting arms and provided with a driving segment, a shaft mounted on said shaft supporting arms, a driving gear on said shaft coacting with said driving segment, a beveled gear on said shaft provided with a reversible pawl coacting with said driving gear, and a transmission shaft disposed vertically through said base member and axially of said frame and provided with a beveled gear at its upper end meshing with said driven gear and with a beveled gear at its lower end meshing with said beveled gear on said propeller shaft, said propeller supporting arm being provided with bearings for said propeller and transmission shaft disposed adjacent the ends thereof, said frame having a bearing for the upper end of said transmission shaft.

3. In a boat propeller, the combination of a base, a clamp for attaching said base to a boat, a frame rotatably mounted on said base and provided with a downwardly and rearwardly projecting propeller carrying arm, a pair of vertical shaft supporting arms and a pair of upwardly and forwardly projecting actuating lever supporting arms, a propeller shaft mounted on said propeller supporting arm and provided with a propeller at its outer end, a rudder blade at the lower end of said propeller supporting arm disposed in front of the propeller, a driving and steering lever mounted on said lever supporting arms and provided with a driving segment, a shaft mounted on said shaft supporting arms, a driving gear on said shaft coacting with said driving segment, a gear on said shaft provided with a reversible pawl coacting with said driving gear, and driving connections for said driven gear to said propeller shaft.

4. In a boat propeller, the combination of a frame provided with a downwardly and rearwardly projecting propeller carrying arm, a pair of vertical shaft supporting arms and a pair of upwardly and forwardly projecting actuating lever supporting arms, a

propeller shaft mounted on said propeller supporting arm and provided with a propeller at its outer end, a lever mounted on said lever supporting arms and provided with a driving segment, a shaft mounted on said shaft supporting arms, a driving gear on said shaft coacting with said driving segment, a gear on said shaft provided with a reversible pawl coacting with said driving gear, and driving connections for said driven gear to said propeller shaft.

5. In a boat propeller, the combination of a base adapted for attachment to a boat, a frame rotatably mounted on said base and provided with a downwardly and rearwardly projecting propeller carrying arm, a pair of vertical shaft supporting arms and a pair of upwardly and forwardly projecting actuating lever supporting arms, a propeller shaft mounted on said propeller supporting arm and provided with a propeller at its outer end, a rudder blade at the lower end of said propeller supporting arm disposed in front of the propeller, a driving and steering lever mounted on said lever supporting arms and provided with a driving segment, a shaft mounted on said shaft supporting arms, a driving gear on said shaft coacting with said driving segment, and driving connections for said driving gear to said propeller shaft.

6. In a boat propeller, the combination of a frame provided with a downwardly and rearwardly projecting propeller carrying arm, a pair of vertical shaft supporting arms and a pair of upwardly and forwardly projecting actuating lever supporting arms, a propeller shaft mounted on said propeller supporting arm and provided with a propeller at its outer end, a rudder blade at the lower end of said propeller supporting arm disposed in front of the propeller, a driving and steering lever mounted on said lever supporting arms and provided with a driving segment, a shaft mounted on said shaft supporting arms, a driving gear on said shaft coacting with said driving segment, and driving connections for said driving gear to said propeller shaft.

7. In a boat propeller, the combination of a base adapted to be mounted upon a boat, a frame rotatably mounted on said base, a propeller shaft mounted on said frame and provided with a propeller, a rudder carried by said frame to swing therewith, a driving and steering lever mounted on said frame whereby the frame may be swung on said base or the lever swung on its pivot, said lever being provided with a segment, driving gear mounted on said frame to coact with said segment, a driven gear provided with a reversible pawl coacting with said driving gear, and driving connections for said driven gear and propeller shaft.

8. In a boat propeller, the combination of a frame, a propeller shaft mounted on said frame and provided with a propeller, a driving lever mounted on said frame, said lever being provided with a segment, a driving gear mounted on said frame to coact with said segment, a driven gear provided with a reversible pawl coacting with said driving gear, and driving connections for said driven gear and propeller shaft.

In witness whereof, I have hereunto set my hand and seal.

GEORGE C. KELLY. [L. S.]