To all whom it may concern:

Be it known that I, Ole Evinrude, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Marine Propulsion Mechanism; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in what is herein particularly set forth with reference to the accompanying drawings and pointed out in the claims of this specification, its object being to provide simple, economical and efficient and preferably portable propulsion mechanism for ready detachable connection with the stern or a side of a rowboat or other small craft and to provide for ready adjustment of the propeller portion of the mechanism to a suitable angle and depth with respect to said craft.

Figure 1 of the drawings represents a for the most part sectional view of propulsion mechanism in accordance with my invention, a clamp-portion of same being shown as it appears connected to the flaring stern of a boat and the axis of the propeller portion of the mechanism horizontal at a suitable depth; Fig. 2, a rear elevation of a portion of said mechanism partly broken away and in section; Fig. 3, a horizontal section view on line 3–3 in Fig. 2, a portion of an adjustable collar in this view being partly broken away, and Fig. 4, an elevation of the aforesaid mechanism having the clamp portion thereof shown as it appears in connection with a vertical stern portion of a boat, the propeller being correspondingly adjusted.

Referring by numerals to the drawings, 1 indicates the cylinder, and 2 the piston of an internal-combustion engine having a casing-extension 3 of said cylinder provided with bearings for the engine-shaft 4, the crank of this shaft being in connection with the piston-rod 5. A fly-wheel 8 fast on the upper outer end of the shaft is provided with a handle 9 to facilitate cranking of the engine, and a gasoline tank 10 is shown conveniently arranged in connection with the casing-extension of the engine-cylinder, the casing being provided with opposite hollow lateral lugs 11 engaged by screw-threaded ends of bearing bolts 12 for the bowed upper ends of a swing-frame 13 designed to hang upon the stern or side of an ordinary rowboat or other small craft, clamp-screws 14 being employed in connection with said ends of the frame to bind the same against the opposing surface of said craft.

Rigidly secured on one of the crank-bearings is a depending tube 15, and in telescopic engagement with the same is another tube 16 rigidly secured at its lower end to a gear-case 17. The tube 16 extends through a collar 18 having a slotted extension 19' engaged by a lower outwardly extending and preferably right-angle arm 13' of the swing-frame, the slot in the collar-extension being V-shaped from the center in opposite directions to prevent binding of said arm therein. A set-screw 18'' is employed in connection with the extension 19' of the collar 18 to hold said collar in adjusted position with respect to the arm 13' of the swing-frame 13. Embracing the upper end of the tube 16 is a depending partly split tubular shank 19 of a tiller 19 that plays upon a supporting rod 20 in connection with the swing-frame 13 transversely of the same. The split in the tiller-shank is flanked by ears 21 engaged by a bolt 22, and a clamp-nut 23 is run on the screw-threaded end of the bolt, tightening of the nut serving to grip said shank upon the tube 16.

Rigidly secured on the lower end of the engine-shaft 7 is a sleeve-extension 5' provided with an inner spline 24 engaging a groove in a shaft 25 for which a portion 17' of the gear-case 17 constitutes a bearing 26 within the lower end of the tube 16. The shaft is virtually a sliding section of the engine-shaft and its lower end is in miter-gear connection with the shaft 26' of a propeller 26, as shown in Fig. 1, the gear-case 17 being provided with bearings for said
propeller-shaft. The propeller-hub and the end of the gear-case farthest from said hub are preferably conical as herein shown, and the gear-case extension 17' is fast in the 

5 tiller-controlled tube 16.

A pump-cylinder 27 is shown fitted to the gear-case 17 for connection, by a hose 28, with the inlet of the water-jacket of the engine-cylinder, and the pump-piston 29 is operated by a cam 30 on the hub of the gear-wheel of the propeller-shaft.

From the foregoing it will be readily understood that, by means of the swing-frame 13 and clamp-screws 14 therewith, the portable propulsion mechanism above specified may be readily attached to the stern or side of a rowboat or other small craft and the propeller portion of said mechanism suitably positioned regardless of the angle of said stern or side of said craft, because of the adjustability of the collar 18 longitudinally of the arm 19' of said frame and the rotary adjustable fit of the tube 16 in said collar, the thrust of the propeller being on said arm. It will also be readily understood that by loosening the tiller-shank 19', the tube 16 and parts therewith may be lowered more or less and adjusted to place the propeller 26 at a suitable depth and angle with respect to the craft carrying the propulsion mechanism aforesaid, said craft being steered by tiller adjustments of said propeller.

I claim:

1. The combination of an engine, a frame in swing connection with the engine and attachable to a rowboat or other small craft, an arm extending outwardly from the frame, a collar in adjustable connection with the arm longitudinally of the same, a tiller, a tiller-controlled tube concentric with the engine-shaft and extending through said collar, and a propeller suspended in connection with said tube, the propeller-shaft being geared to said engine-shaft.

2. The combination of an engine, a bowed end frame in swing-connection with the engine and carrying clamp-screws by which to secure the same in connection with a rowboat or other small craft, an arm extending outwardly from the frame, a collar in adjustable connection with the arm longitudinally of the same, a tiller, a tiller-controlled tube concentric with the engine-shaft and extending through said collar, and a propeller suspended in connection with said tube, the propeller-shaft being geared to said engine-shaft.

3. The combination of an engine having an extensible shaft and provided with means for attachment to a rowboat or other small craft, a tube constituting an extension of one of the bearings for said shaft, another tube in sliding engagement with the tube aforesaid, a tiller having a clamp-shank in which the slide-tube is secured in adjusted position, a support that extends outwardly from the craft aforesaid, a sleeve in connection with the support and through which said slide tube extends, a propeller suspended in connection with the aforesaid slide tube, and gearing connecting the propeller-shaft with the extensible engine-shaft.

4. The combination of an engine having an extensible shaft and provided with means for attachment to a rowboat or other small craft, a tube constituting an extension of one of the bearings for said shaft, another tube in sliding engagement with the tube aforesaid, a suitably supported tiller having a split tubular shank engaging the slide tube, means for clamping the tiller-shank upon said slide tube, a propeller suspended in connection with the aforesaid slide tube, and gearing connecting the propeller-shaft with the extensible engine-shaft.

5. The combination of an engine provided with means for its attachment to a rowboat or other small craft, a tube constituting an extension of the engine-shaft proper, a shaft-section in spline-and-groove connection with said tube, a tube constituting an extension of a shaft-bearing concentric with the tube aforesaid, another tube in sliding engagement with the tube-extension of said bearing, a tiller having a clamp-shank in which the slide tube is secured in adjusted position, a propeller suspended in connection with said slide tube, and gearing connecting the propeller-shaft with the aforesaid shaft-section which same is arranged and connected to be adjustable with the aforesaid slide tube.

6. The combination of an engine having an extensible shaft, a frame in swing connection with the engine and attachable to a rowboat or other small craft, an arm extending outwardly from the frame, a collar in adjustable connection with the arm longitudinally of the same, a tube constituting an extension of one of the bearings for said shaft, another tube in sliding engagement and extending through the tube aforesaid and with said collar, a tiller having a clamp-shank in which the slide tube is secured in adjusted position, a propeller suspended in connection with said slide tube, and gearing connecting the propeller shaft with the extensible engine-shaft.

7. The combination of an engine having an extensible shaft, a frame in swing connection with the engine and attachable to a rowboat or other small craft, an arm extending outwardly from the frame, a collar in adjustable connection with the arm longitudinally of the same, a tube constituting an extension of one of the bearings for said shaft, another tube in sliding engagement with the tube aforesaid and with said collar,
a suitably supported tiller having a split tubular shank engaging the slide tube, means for clamping the tiller-shank upon the slide tube, a propeller suspended in connection with the aforesaid slide tube, and gearing connecting the propeller-shaft with the extensible engine-shaft.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

OLE EVINRUDE.

Witnesses:

N. E. OLIPHANT,

MAY DOWNEY.