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HAND-PROPELLING GEAR FOR SHIPS' BOATS

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[Diagram of hand-propelling gear for ships' boats]

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Hand-Propelling Gear for Ships' Boats

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HAND-PROPELLING GEAR FOR SHIPS' BOATS

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1 Claim. (Cl. 115—34)

This invention is for an improved hand-propelling gear for use in ships' lifeboats.

Ships' lifeboats having hand-propelling gear of the type in which oscillating levers are connected to a common coupling bar and drive the transverse shaft through cranks thereon and connected to the coupling bars by connecting rods, are known. Owing to the fact that ships' lifeboats are frequently stored for considerable periods it is important that the operating mechanisms shall be reliable and simple; the above known type of gear has the advantage of reliability and simplicity but in known forms the gearing between the propeller shaft and the transverse shaft and the reversing gear is exposed. This exposed form of gear, when subject to the corrosive conditions obtaining at sea, may become inefficient, and one object of the invention is to improve the arrangement of the gear so as to eliminate the risk of inefficiency arising through corrosion.

Another object of the invention is to provide a form of hand-propelling gear which can be readily altered to incorporate an auxiliary motor propulsion. This facility is of importance to shipowners because boats which are fitted with hand-propelling gear, according to this invention, can be readily and inexpensively refitted with a supplementary mechanical propulsion.

The term "ships' boats" is used in this specification to include cutters, pleasure boats, land- ing barges and similar light craft, which are capable of being propelled by hand-propelling gear only.

The invention will be further described with reference to the accompanying diagrammatic drawings, wherein:

Figure 1 is a side elevation of the gear mechanism,

Figure 2 is a plan view of Figure 1,

Figure 3 is an elevation in outline of the boat showing the positions of the hand propelling gear and the driving mechanism, and

Figure 4 is a plan view of Figure 3,

Figure 5 is a diagram of the gear mechanism.

The hand propelling gear comprises a series of levers 10 arranged on opposite sides of the boat main frame and pivoted in spaced relationship at 11 to brackets 12 mounted on the buoyancy tanks 13 running fore and aft of the boat. The hand levers 10 on opposite sides of the boat are coupled respectively to coupling rods 14 which are connected by connecting rods 15 to cranks 16 and 17 mounted on a transverse shaft 18 journalled in bearings 20 in a totally enclosed casing 21 for the gear mechanism. The cranks 16 and 17 are arranged 90° out of phase with each other and by reciprocating the handles 18 operators seated on the seats 22 rotate the shaft 18 which drives the propeller shaft 23 through the gear mechanism in the casing 21. The casing 21 constitutes an oil bath for the gear mechanism. The gear mechanism comprises a crown wheel 24 loosely journalled on the shaft 18 and adapted to be driven by the shaft 18 through a clutch comprising a driven element 25 formed on the crown wheel and an axially movable driving element 26 keyed on the shaft 18. The clutch element 25 also forms part of a uni-directional driving mechanism 26 through which the shaft 18 can drive the crown wheel 27 in the ahead direction when the clutch 25, 26 is disengaged and a power unit such as a Diesel engine is added as an auxiliary for propelling or assisting propulsion of the boat. The clutch element 26 is adjustable into and out of engagement with its co-operating clutch element 25 by means of a bell crank lever 28 pivoted at 25. The crown wheel 24 meshes with a bevel pinion 29 on the propeller shaft 23 so that when the crown wheel is rotated a drive is transmitted to the propeller 30. When the boat is adapted to be propelled by means of a hand propelling gear only the clutch element 26 is permanently in engagement with its co-operating element 25 and this is effected by securing the bell crank lever 28 to the casing by means of a set screw 31. This provides a solid driving connection in both directions between the shaft 18 and the crown wheel 24. To provide for reversal of the propeller shaft so that the boat can be propelled ahead or astern a ratchet wheel 32 is fixed on the shaft 18 and is adapted to be engaged selectively, for example by a cam 44, by pawls 35 and 36 according to the direction in which the crown wheel is to be rotated. The pawls 35 and 36 are operated by a control rod 37. The rear face of the casing opposite the propeller shaft bevel pinion is closed by a detachable cover plate 38.

The gear mechanism above described is supplied initially when it is contemplated that the propelling mechanism for the boat may be extended to include a power unit and when this extension is to be made the detachable cover plate 38 is removed and a gear casing 41 housing a gear train adapted to be coupled to the power unit is bolted to the casing 21 in place of the blank cover 38. This gear train includes a bevel wheel 39 shown in chain lines in Figure 2, which
meshes with the crown wheel 24 so that a drive is transmitted from the power unit to the propeller shaft 23. Also the set screw 33 is removed and the bell crank lever is connected to an operating rod 38 shown in chain lines, which enables the clutch 25, 26, to be disconnected when desired. Under these conditions the hand propelling gear may be operated to start and assist the engine by driving the crown wheel 24 through the uni-directional clutch 27. The casing may be provided initially with tubular bearings which, when the installation is extended to provide for the power unit, receive operating rods 42 and 43 controlling a part of the power transmission mechanism located in the casing which is substituted for the blank cover 38.

What is claimed is:

In mechanism for operating a ship's life boat of the type including a propeller, a propeller shaft, a hand propelling gear, a totally enclosed gear mechanism gearing the propelling gear to the propeller shaft, the combination of a one-way driving device between the hand propelling gear and the propeller shaft to prevent the hand propelling gear being driven by a power unit when the latter is fitted and working, a clutch mechanism for rendering the one-way driving device inoperative and for coupling the hand propelling gear solid to the propeller shaft, and locking means for locking said clutch mechanism in the engaged position until such time as the power unit is fitted.

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