Oct. 5, 1943. A. H. HARVEY ET AL 2,331,073

PROPULSION APPARATUS

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FIG 1

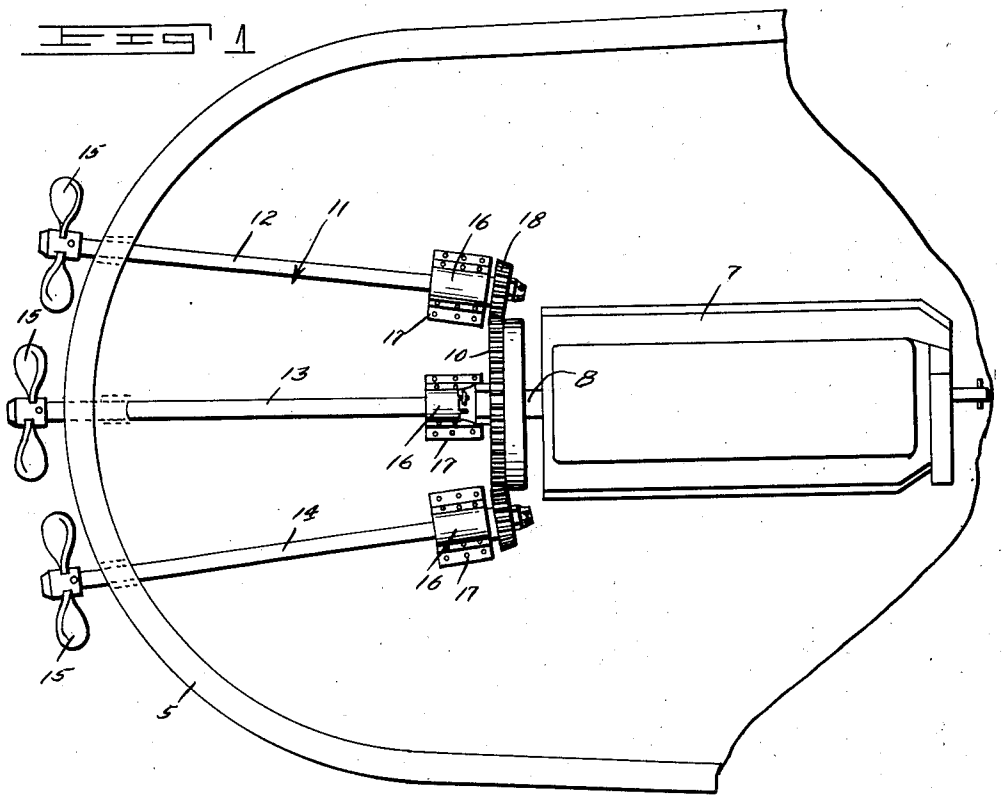


FIG 4

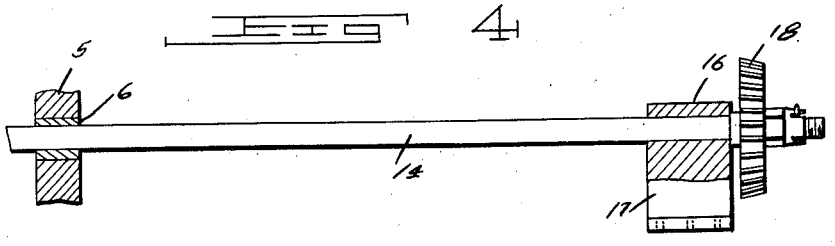
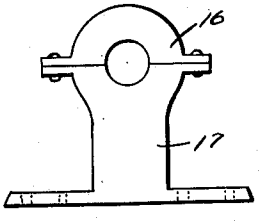


FIG 5



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PROPULSION APPARATUS

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FIG 2

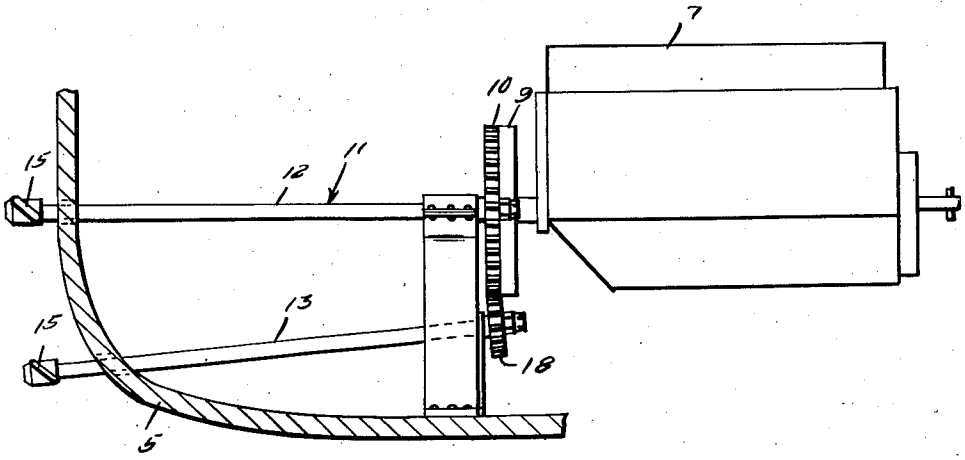


FIG 3

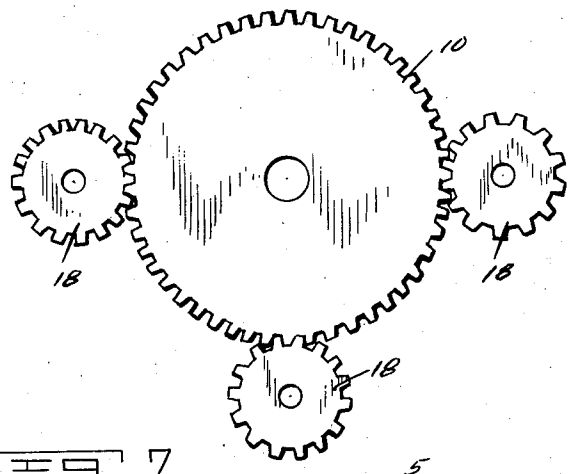


FIG 6

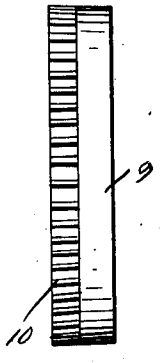
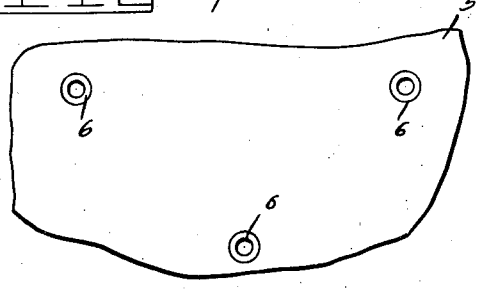


FIG 7



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PROPULSION APPARATUS

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Application July 10, 1942, Serial No. 450,458

1 Claim. (Cl. 115—37)

This invention appertains to new and useful improvements in propulsion means for marine vessels.

The principal object of the present invention is to provide a multiple propeller assembly for single power plant vessels.

Another important object of the invention is to provide a multiple propeller assembly for single power plant vessels in which the speed of the propeller unit is increased by gearing over the turning speed of the power plant.

Other objects and advantages of the invention will become apparent to the reader of the following description.

In the drawings:

Figure 1 represents a fragmentary top plan view showing a power plant and the propeller assembly.

Figure 2 is a fragmentary vertical sectional view through the hull of a vessel showing the propeller assembly and power plant.

Figure 3 is a diagrammatic view showing the gearing arrangement.

Figure 4 is a fragmentary detailed sectional view showing one of the driven shafts.

Figure 5 is an elevational view of one of the bearings.

Figure 6 is a side elevational view of the flywheel and ring gear.

Figure 7 is an outside rear elevational view of the stern of the boat.

Referring to the drawings wherein like numerals designate like parts, it can be seen in Figure 1 that numeral 5 denotes the stern portion of a marine vessel and consistent with one practical embodiment of the present invention, this portion of the vessel has three openings therein, in each of which is a bearing or bushing 6.

In the vessel is a power plant 7 from which extends a drive shaft 8 and on this drive shaft 8 is a flywheel 9 provided with a ring gear 10.

The propeller assembly is generally referred to by numeral 11 and in the embodiment of the invention shown in Figure 1, three propeller shafts are provided, these being denoted by numerals 12, 13 and 14, each extending through a corresponding bushing 6 in the stern of the boat and being equipped at its rear end with a propeller 15.

The propeller shafts 12 and 14 are rearwardly diverged with respect to the axially disposed shaft 13, but each of these shafts extends through a bearing structure 16 located upon a stand 17 suitably secured to the bottom of the boat or to some supporting structure in the boat.

The forward end of each of the shafts 12, 13 and 14 is equipped with a beveled pinion 18 meshing with the ring gear 10 as in the manner substantially shown in Figure 1. The arrangement of these pinions is substantially shown in Figure 3, it being shown that the lowermost pinion 18 meshes with the lower portion of the ring gear 10 while the remaining pinions 18 mesh with the ring gear 10 at diametrically opposite portions of the ring gear substantially ninety degrees removed each from the lowermost pinion 18.

Thus it can be seen, that the single power plant 7 drives three propellers and the speed of these propellers is increased over the speed of rotation of the drive shaft 8 by the speed increasing gears 10, 18. This arrangement economizes on space and also on power.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

A propulsion apparatus comprising a power plant, a flywheel driven by the power plant, a ring gear on the flywheel, a plurality of stern directed propeller shafts disposed in rearwardly diverged relation with respect to each other and including a pair of shafts upon opposite sides of said gear, respectively, and a lower shaft at the bottom of said gear, each of the shafts provided with a propeller, and beveled pinions at the remaining ends of the shafts in mesh with the ring gear, and bearing stands through which shafts are journaled.

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