This invention relates to guards for the propellers of outboard motors.

The greatly increased interest in boating, using outboard motors, which involves youth as well as adults, makes it imperative to provide guards for the propellers that will achieve the primary purpose of protecting anyone from accidental contact with the functioning propeller and precluding the restricted functioning of the propeller in use. Boating accidents due to injuries to persons coming in contact with the rotating propeller, while swimming adjacent the boat, have increased to a point that protection is required to prevent such injuries.

The main objects of this invention are to provide an improved guard for the propellers of outboard motors; to provide an improved propeller guard for outboard motors affording the primary function of insuring absolute protection against accidental bodily contact with the whirling propeller; to provide a propeller guard possessing those functions without lessening the maximum thrust of the boat in the water; to provide a propeller guard of this kind the dimensioning and relative arrangement of the parts of which may be accommodated to engines of varying sizes, shapes and power capacities to not only secure their respective maximum performance capabilities but also to facilitate the stability and maneuverability of the craft as powered by the engine to which the guard is attached; and to provide an improved propeller guard of this kind of such simple construction as to make its manufacture very economical, its attachment to and detachment from the motor-housing extremely facile, and a ready angular alteration of portions of the guard on opposite sides of the propeller to insure the full functioning capacity of the propeller in the water.

In the adaptation shown in the accompanying drawings; FIG. 1 is a side view of a propeller guard constructed in accordance with this invention as positioned on a motor-housing shown in dotted outline; FIG. 2 is a transverse sectional view taken on the plane of the line 2—2 of FIG. 1; and FIG. 3 is a fragmentary plan view taken on the plane of the line 3—3 of FIG. 1.

The essential concept of this invention involves a circularly disposed series of rods each immediately bonded to a ring with the oppositely-extending portions of the rods radially angled inwardly of the intermediate portions into frustum disposition with a clamp on the ring for embracing positioning on the motor-housing to dispose the ring and the rods concentrically of the propeller shaft.

A propeller guard for outboard motors constructed in accordance with the foregoing concept comprises a ring 5 mounting a circumferential series of rods 6 and a clamp 7.

The ring 5 here is shown as a piece of comparatively narrow strap metal of rather rigid character and with a degree of resiliency sufficient to insure recoil, from shocks it might receive, without the likelihood of permanent distortion of its circularity. The length of the piece of strap metal would be such as to form a ring somewhat larger than the outside diameter of the blades of a propeller 8 about which the guard is to be positioned by the herein-after described clamp 7.

The rods 6 are sections of suitable gauge wire having a degree of resilient hardness to enable them individually and collectively to accept reasonably severe shocks without altering their general relative disposition to each other and to the ring 5. As is most apparent in FIG. 1 each rod 6 has an intermediate portion 9 and opposite forward and rear end portions 10 and 11 respectively. These three portions, as here shown, are substantially equal in length. However, that might vary in guards for certain types of engines other than the one herein illustrated. The rods 6 are bonded such as by welding to the ring 5 preferably on the external face thereof and nearer the forward angled end portion than the rear end portion. The bonding of the rods 6 to the ring 5 disposes the intermediate portions 9 of the rods substantially parallel axially of the ring 5.

So positioned on the ring 5, the angled end portions 9 and 10 assume a frustum relationship, with the advancing end portions 9 disposed at less of an angle to the propeller axis than the trailing end portions 10.

The number of rods 6, arranged on the ring 5, would depend upon the size and shape of the motor to which the guard is to be attached. In any event the number of rods 6 should be influenced by two factors. First, insuring against any reasonable likelihood of a careless maneuver of a person, in the vicinity of the rotating propeller, and being struck by it by accidental insertion of parts of the body. Secondly, interfering as little as possible with the best flow of water to the propeller and the unhindered thrust thereof by the propeller. Obviously such number, form and spacing of the rods 6 on the ring will be influenced by the size, shape and power of the motor witherwith the guard is to be used.

The clamp 7, as here shown, consists of two arcuate-shaped members 12 and 13 formed of resilient strap metal quite the same as the ring 5. These two members 12 and 13 are arcuate shaped for the greater part of their length between the end ears 14 apertured for the reception of fasteners 15. Preferrably, as shown herein, these respective arcuate members 12 and 13 are bonded intermediate their respective ends such as by welding to the opposite ends of the split ring 5. The precise nature and length of the arcuate portions of these members 12 and 13 would be determined by the size and contour of the tubular shaft and/or gear housing 20 at the point where it is most practical to attach the guard so that the ring 5 will be substantially concentrically disposed relative to the axis of the propeller 8.

To insure the most rigid support of the guard on the motor housing, the herein shown ring 5 is formed with a socket 16 at a point diametrically opposite the clamp 7. Such a socket 16 is contoured to seat the tapered end 17 of the skeg 18. Such a supplemental socket 16, in this instance, is formed by a pair of spaced lugs 19 bonded to the interior face of the ring 5, as most clearly shown in FIG. 2.

The attachment of the rods 6 at their intermediate portions 10 to the ring 5, with the opposite rod ends 10 and 11 disposed in their frustum relationship longitudinally of the water flow induced by the rotating propeller 8, provides a very effective guard with a very minimum of obstruction to the water flow formed by the rotating propeller 8. Thus, there is practically an undisturbed flow of water to the propeller along and between the advancing end portions 10 of the rods 6 and very little if any interference with the thrust of the water from the rotating propeller 8 rearwardly through and around the trailing end portions 11 of the rods 6. Moreover, the length of the rods and the frustum form of the end portions 10 and 11 has an influence on the flow of water through the guard that affords additional directional stability and maneuverability to the boat traveling through the water. Such accessory benefits may be influenced by accommodating both the length of the rods 6 and the angular disposition of the end portions 10 and 11 to the structural and power characteristics of the motor wherever the guard is to be used.
Although but one specific embodiment of this invention is herein shown and described, it will be understood that details of the construction shown may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

1. A motor-propeller guard for outboard engines having a shaft housing and a propeller comprising, a ring, a plurality of spaced rods each bonded substantially medially of its ends to said ring, portions of each rod at opposite sides of its bond to the ring being angled inwardly into frustum disposition with the free ends of the respective angled-rod portions circumferentially disposed and defining axially-spaced openings, and clamp means for securing said ring to the outboard motor shaft housing and positioning said guard about the propeller with the rod-defined opening located in axially-aligned opposition with the motor propeller.

2. A motor-propeller guard for outboard engines having a shaft housing and a propeller comprising, a ring, a plurality of spaced rods each bonded to the ring with substantial portions of each rod at opposite sides of the bonding to the ring being substantially parallel, with other substantial portions of each rod beyond the parallel portions angled inwardly into frustum disposition with the free ends of the respective angled-rod portions circumferentially disposed and defining axially-spaced openings, and means for clamping the ring to the shaft housing to position said guard about the propeller with the rod-defined openings located in axially-aligned opposition with the motor-propeller.

3. A motor-propeller guard for outboard engines having a shaft housing and a propeller comprising, a split ring member, a plurality of spaced rods each bonded to the ring member with portions of each rod axially of said ring member angled inwardly on both sides of said ring member into frustum disposition with the free ends of the respective angled rod portions circumferentially disposed and defining axially spaced openings, a pair of opposed arcuate members bonded to said ring member, one on each side of the split in said ring, and fasteners on said arcuate members for embracively clamping said arcuate members to the shaft housing with said ring member concentrically positioned relative to the propeller axis with the rod defined openings located in axially aligned opposition with the motor propeller.

4. A motor-propeller guard for outboard motors having a propeller shaft housing, a propeller and a skeg comprising, a strap-metal split ring, a plurality of resilient-metal rods each having a straight intermediate portion with substantially equal length opposite ends portions angled to the respective intermediate portions, said rods being bonded to said ring in substantially uniformly circumferentially spaced relationship with the oppositely angled end portions of said rods disposed inwardly in substantially frustum relationship with the free ends of the respective angled-rod portions circumferentially disposed and defining axially spaced openings, and a clamp secured to the ring for embracing the shaft housing to position said ring concentrically of the propeller axis with the rod-defined openings located in axially-aligned opposition with the motor-propeller.

References Cited in the file of this patent

UNITED STATES PATENTS

2,244,217 Pries ----------------- June 3, 1941
2,963,000 Fester ----------------- Dec. 6, 1960
2,983,246 Manley ----------------- May 9, 1961
3,027,864 Polson ----------------- Apr. 3, 1962