

May 23, 1961

S. E. SHAFFER

2,985,133

PROPELLER GUARD

Filed May 6, 1958

Fig. 1

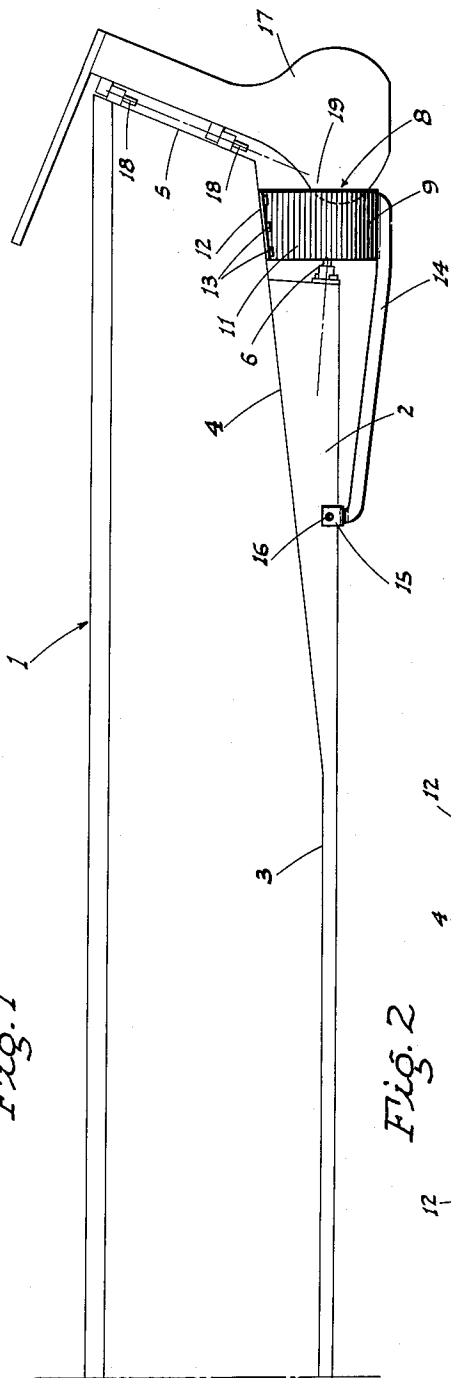


Fig. 2

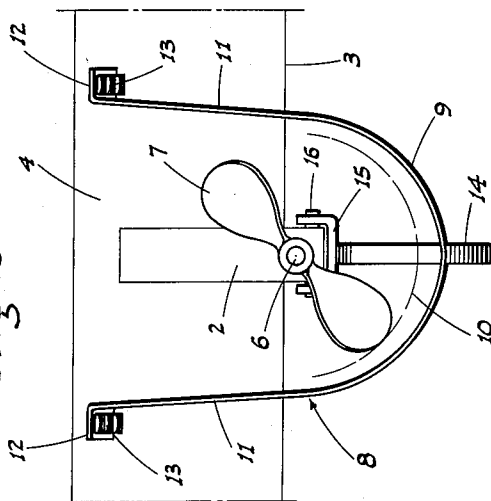
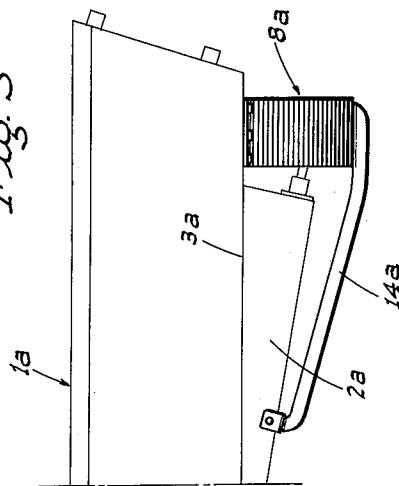


Fig. 3



INVENTOR.

Stanley E. Shaffer

BY

Robert R. Shaffer
ATTYS

1

2,985,133

PROPELLER GUARD

Stanley E. Shaffer, Merced, Calif.
(85 Palm St., San Francisco, Calif.)

Filed May 6, 1958, Ser. No. 733,367

4 Claims. (Cl. 115—42)

This invention relates to guards for the permanently mounted propellers of inboard-engine motor boats.

One of the objects of the invention is to provide a guard for the purpose, particularly designed for a relatively light shallow draft boat, which will permit of beaching of the boat without damage to the propeller, and which allows the propeller to operate with efficiency in very shallow water.

A further object of the invention is to so mount the guard that it can yield to a certain extent without damage, and while still protecting the propeller when the keel of the boat passes over a relatively unyielding object.

Another object of the invention is to construct the guard so that when the boat is under way, very little wake is created, and the guard straightens out or counteracts any turbulence of the water and prevents cavitation, so that efficient propeller operation is assured under all conditions. The guard also acts as a tail fin to stabilize the boat, and thus limits or prevents broaching tendencies.

The boat is of course provided with a rudder, and still another object of the invention is to so arrange and mount the rudder with relation to the guard so that the water thrust rearwardly from the guard by the propeller action will act on the rudder in a manner to enable the boat to be turned in a very short radius, and without the use of an excessively large rudder.

It is also an object of the invention to provide a propeller guard which is designed for ease and economy of manufacture.

Still another object of the invention is to provide a practical and reliable propeller guard, and one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing:

Fig. 1 is a partial outline of an inboard engine motor boat having an upwardly sloping bottom stern portion, showing my improved guard mounted thereon, and also showing the cooperating relationship of the rudder to the guard.

Fig. 2 is a fragmentary enlarged rear end view of the boat and guard; the rudder being removed

Fig. 3 is a fragmentary side outline of a boat having a straight-bottom stern portion, and showing the guard as modified for mounting thereon.

Referring now more particularly to the drawings, and to the characters of reference marked thereon, and at present to Figs. 1 and 2, the boat here depicted and indicated generally at 1, includes a keel 2 depending from the bottom 3, the stern portion 4 of which slopes upwardly to a transom 5, while being flat in a transverse plane.

The keel 2 terminates short of the stern end of portion 4, and the shaft 6 of a propeller 7 projects, as usual, from the end of the keel, and so that the propeller blades extend below the keel.

2

The improved propeller guard, denoted generally at 8, is formed from a strip of resilient sheet metal whose width is greater than that of the propeller blades. The strip is bent into substantially U-shaped form, the lower, substantially semi-circular curved portion 9 of which is generally concentric with the path of rotation 10 of the tips of the propeller blades and radially out from said path a short distance. The curved portion 9 is, however, disposed so that the spacing between said portion and the path of rotation 10 is greater at the bottom than at the sides in the transverse axial plane of the propeller, as clearly shown in Fig. 2.

Straight side portions 11 extend upwardly from the curved portion 9, and at their upper edges are bent to provide outwardly projecting flanges 12 which engage the flat bottom portion 4, and are secured thereto by bolts 13. The side portions 11 are preferably disposed at an upwardly diverging angle to each other, as shown. The flanges 12 are set on said portions 11 so that the side edges of the latter—and which are parallel to each other—will be vertically positioned, while the lower longitudinal edge of the guard will be horizontal or parallel to the bottom of the keel 2, as shown in Fig. 1.

Secured on the bottom of the guard centrally thereof, and extending forwardly therefrom, is a rigid skeg 14. This skeg slopes upwardly from the guard to a termination under and adjacent the keel, and at such termination is fitted with an upwardly facing C-shaped bracket 15 which embraces the keel from above, and to which it is secured by a transverse pivot pin 16.

The boat is of course equipped with a rudder 17, detachably mounted on the transom 5 by pintles 18 in the usual manner. The body of the rudder depends to a level approximately that of the bottom of the skeg, and said body—at its forward end—is formed with an extension 19 disposed ahead of the axial line of the pintles 18 and projecting into the rear end of the guard 8, as shown in Fig. 1. This arrangement gives a most efficient and sharp steering action, since the rearwardly moving body of water confined within the guard can thus engage and act on the rudder body for substantially the full width thereof.

In Fig. 3 the guard 8a is shown as attached to a boat 1a having a straight bottom 3a, but the skeg 14a extends and is secured to the keel 2a in the same manner as the first described type. In either case the action and results obtained by the guard and its skeg are the same.

By reason of the arrangement described, the propeller is adequately guarded and protected from engagement with sunken objects when the boat is under way, or with rocks or the like on the shore when the boat is being beached. Also, the guard straightens out any turbulence of the water and prevents cavitation; thereby promoting efficient propeller action.

Since the guard is of resilient material and is mounted (by the skeg) for yieldable upward movement, no damage will be done to the skeg, or to the guard, if the skeg should contact some relatively rigid underwater obstacle.

The curved or rounded portion of the guard being further from the path of the propeller at the bottom than at the sides, allows of a relatively great amount of upward yielding of the guard without hitting the propeller, while at the same time somewhat closely confining the propeller, as is desirable. The divergence of the straight side portions of the guard of course help to stabilize the guard and prevent any tendency for the same to deflect laterally, and thus lessens the strain on the skeg and its mounting pivot.

The axis of the propeller shaft is necessarily set at an upward angle to the keel in order that the shaft may enter the boat for engine connection. The water acted on by the propeller is thus thrust downward somewhat

3

instead of straight back, and which would give the best action. The propeller guard—being straight and parallel to the keel on the bottom—deflects the water thus otherwise thrust down and forces the same in a direct rearward direction, so that the desirable reaction on the boat is obtained.

From the foregoing description it will be readily seen that there has been produced such a device as will substantially fulfill the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. A guard for the permanently mounted propeller of a boat in which the propeller is under the bottom of the boat; said guard comprising a solid shield mounted on said bottom in depending relation thereto and extending about the propeller in clearance relation thereto, said shield being of resilient material and having straight side portions depending from and secured to the bottom of the boat and disposed to the sides of the propeller, and a substantially semi-circular portion about the lower portion of the circular path of rotation of the propeller blade tips; a rigid skeg under and connected

4

to the shield and extending forwardly a predetermined distance to a point adjacent the bottom of the boat, and means including a transverse pivot element connecting the forward end of the skeg to the boat.

2. A guard, as in claim 1, in which said straight side portions of the shield diverge upwardly relative to each other.

3. A guard, as in claim 1, in which the curved portion of the shield is normally spaced a greater distance from said path of the blade tips at the bottom of the path than at the sides thereof opposite the axis of the propeller.

4. A guard, as in claim 1, in which the boat includes a keel, and said last named means comprises an upwardly facing C-shaped bracket rigid with the forward end of the skeg and embracing the bottom portion of the keel; said pivot element projecting through the bracket and keel.

References Cited in the file of this patent

UNITED STATES PATENTS

748,176	Eastwood	Dec. 29, 1903
938,911	Taylor	Nov. 2, 1909
1,112,057	Dudash	Sept. 29, 1914
2,379,834	Sharp	July 3, 1945

FOREIGN PATENTS

651,579	Germany	Oct. 15, 1937
---------	---------	---------------