May 31, 1932. H. M. RIGGS 1,860,750

PROPELLER RELEASE

Filed Dec. 30, 1931

Fig. 1.

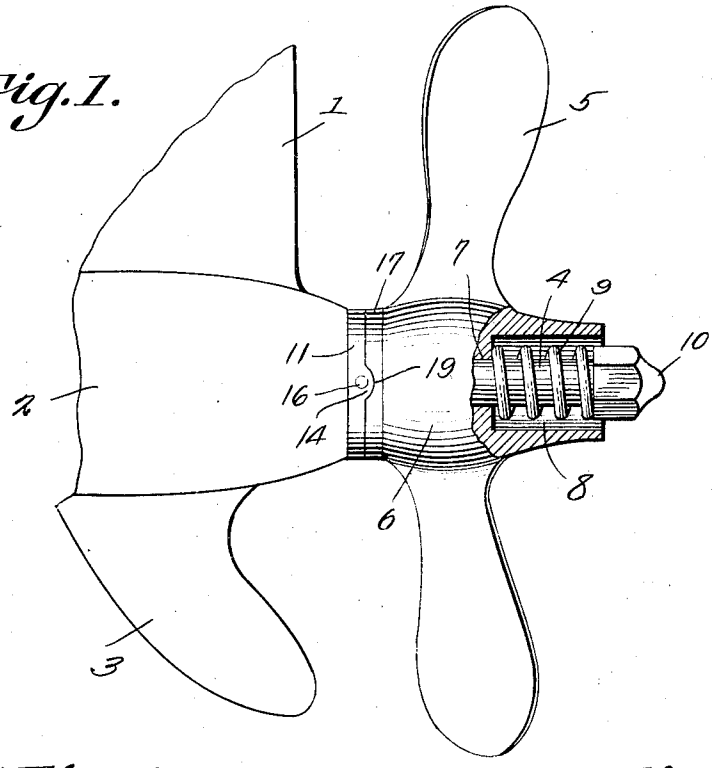


Fig. 2.

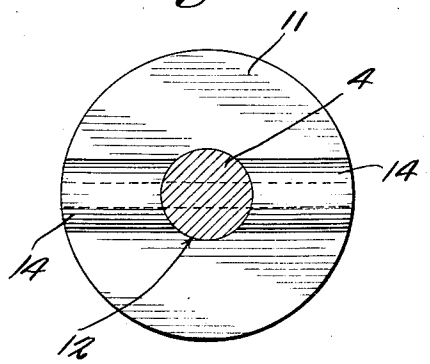
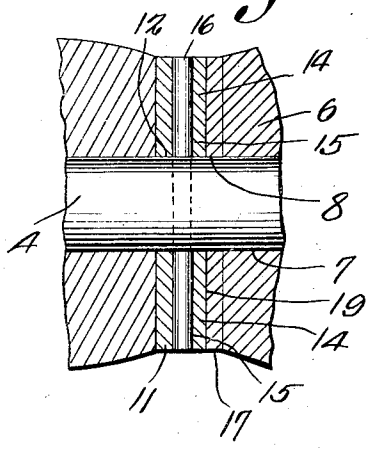


Fig. 3.



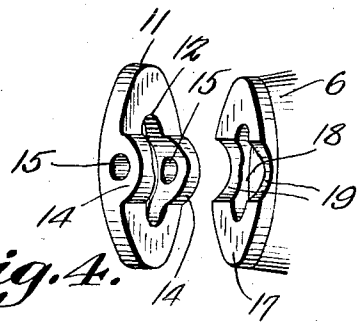


Fig. 4.

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UNITED STATES PATENT OFFICE

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PROPELLER RELEASE

Application filed December 30, 1931. Serial No. 583,979.

This invention aims to provide a simple and strong means whereby a marine propeller can be coupled releasably to the propeller shaft for rotation therewith, to drive the boat, the construction being such that when the propeller strikes a snag or shoal, the propeller can slide backwardly on the propeller shaft, out of driving engagment with the propeller shaft, thereby permitting the propeller to turn without shearing off the blades of the propeller.

Another object of the invention is to provide a simple means, adapted to be assembled readily with known propeller and bearing constructions, to carry out the result above mentioned.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:—

Fig. 1 shows in side elevation, a portion of an outboard motor, wherein the device forming the subject matter of this application has been embodied, parts being broken away;

Fig. 2 is a transverse section taken through the shaft, one of the coupling disks being shown in elevation;

Fig. 3 is a longitudinal section taken through the disks and attendant parts;

Fig. 4 is a perspective view showing the disks.

The numeral 1 marks a portion of an outboard motor, including a bearing 2 having a skeg 3, a propeller shaft 4 being journaled for rotation in the bearing 2.

The propeller is marked by the numeral 5 and has a hub 6 supplied in its forward end with a longitudinal bore 7 of such side as to receive the shaft 4 closely, there being a recess 8, of greater diameter than the bore 7, in the after end of the hub 6.

A compression spring 9 is housed in the recess 8 and is engaged at its rear end, adjustably, by a retainer 10, such as a nut threaded on the after end of the shaft 4. The forward end of the spring 9 abuts against the hub 6 within the recess 8, and at the forward end of the recess.

The numeral 11 marks a disk, of steel or other suitable metal, having a central opening 12 so shaped as to receive the shaft 4 closely. On the rear or inner surface of the disk 11 there are oppositely disposed, rearwardly projecting, rounded ribs 14, which extend outwardly from the opening 12 to the periphery of the disk 11. The ribs 14 are supplied with oppositely disposed, aligned holes 15, adapted to receive a securing element 16, which, passing through the shaft 4, holds the disk 11 on the said shaft, in abutment with the rear end of the bearing 2.

The numeral 17 marks a second disk, likewise made of steel or other suitable metal, and secured to the forward end of the hub 6 of the propeller 5, the disk 17 having an opening 18 of such size as to receive the propeller shaft 4 closely. In the forward or inner surface of the disk 17 there are oppositely disposed seats 19, extending outwardly from the opening 18 to the periphery of the disk 17, and so shaped as to receive, closely but releasably, the rearwardly projecting ribs 14 of the disk 11.

In practical operation, the spring 9, together with the forward thrust of the propeller 5 holds the ribs 14 in the recesses or seats 19, and, thus, when the propeller shaft 4 is rotated, the propeller 5 will be rotated also. If, however, the propeller 5 strikes an obstacle, the propeller will slide rearwardly, compressing the spring 9, the disk 17 retiring from the disk 11, and the ribs 14 being disengaged from the seats 19. Thereupon, the propeller shaft 4 can rotate, the propeller 5 remaining at rest, and there being no danger of breaking the propeller blades, stripping the gears of the driving motor (not shown), or inflicting any other damage

on the mechanism. As soon as the propeller 5 is clear of the obstruction, the spring 9, the forward thrust of the propeller, or both of these factors, taken together, will restore the parts 14 and 19 to the interengaged position of Fig. 1, the propeller 5 then being coupled operatively to the propeller shaft 4.

Owing to the fact that there are but two of the oppositely disposed ribs 14, a large amount of metal can be put into them. This is advantageous for two reasons. First, it strengthens the ribs against shearing, and, secondly, it enables the holes 15 to be formed, without weakening the disk 11.

Having thus described the invention, what is claimed is:—

1. The combination with a marine propeller shaft, of a propeller having a hub provided with a bore, and with an enlarged recess in its rear end, the bore receiving the shaft, and the propeller thereby being mounted to rotate on the shaft and to slide longitudinally of the shaft; and means for coupling the propeller releasably to the shaft for rotation therewith, said means embodying a first disk having an opening receiving the shaft, the first disk being provided with rearwardly-projecting transverse ribs located on opposite sides of the opening, the ribs having alined holes, a securing means in the holes and engaging the shaft, a second disk secured to the forward end of the propeller hub and having an opening receiving the shaft, the second disk being provided on its forward surface with transverse seats located on opposite sides of the opening of the second disk, and shaped to receive the ribs of the first disk, a retainer on the after end of the shaft, and a compression spring located in the recess, about the shaft, and engaged at its ends by the retainer, and by the hub at the base of the recess.

2. Mechanism for coupling a marine propeller releasably to a shaft, embodying two disks with shaft openings, one disk being provided on its inner surface with recesses, and the other disk being provided on its inner surface with ribs shaped to fit in the recesses, the ribs having transverse holes for a shaft-engaging securing means.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

HERVEY M. RIGGS.