This invention relates to a handle structure and particularly to a handle structure used with a flexible member which is to be pulled upon. One important application of the invention is that for the handle on a starter or starting device of an outboard motor. Such starting devices now commonly comprise a flexible member or cap to one end of which a handle is secured for pulling upon the cable.

It is an object of this invention to provide a simple and efficient handle structure and one which is closed.

It is a further object of the invention to provide a handle structure adapted to be used with a flexible member comprising a member adapted to be grasped in the hand, and preferably of knob-like structure, said member having a chamber therein open at one side of said member and having a passage extending from said chamber to the opposite side of said member, a flexible member extending through said passage and having an enlarged means, such as a knot, at its end disposed in said chamber, together with means for closing the open side of said chamber and concealing said enlarged means.

It is more specifically an object of the invention to provide a handle structure comprising a member of yielding or resilient material and formed so as to be grasped in the hand, said member having a chamber therein open at one side of said member and having a passage of much less transverse dimension than said chamber extending from said chamber to the opposite side of said member, a disc disposed in said chamber at the side thereof adjacent said passage and having an aperture therethrough aligned with said passage, a flexible member extending through said passage and aperture and having an enlarged means, such as a knot, at its end disposed in said chamber and abutting said disc, said first mentioned member having an annular groove extending about said chamber adjacent said open side, and a cap having an outwardly extending annular flange adapted to be sprung into said groove for closing said open side.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which—

Fig. 1 is a plan view showing a portion of an outboard motor;

Fig. 2 is a central vertical section;

Fig. 3 is a central vertical section of one member used; and

Fig. 4 is a view in side elevation of a cap used.

Referring to the drawings, a portion 10 of an outboard motor housing or casing is shown in which the mechanism of a starter device is contained. Said casing has a boss 10a formed thereon which is apertured to provide a passage for a flexible member, such as a cable 11. A handle member 12 is provided adapted to be grasped in the hand and while this might take various forms, in the embodiment of the invention illustrated it is shown as in the form of a knob having a rear reduced cylindrical portion 12a which has a short tapering portion 12b adapted to seat in a recess in lug 10a. While member 12 could be made of various material, it preferably is made of some yielding or resilient material, such as rubber or a rubber composition. Member 12 is provided with a chamber 12c shown as of general cylindrical form, and said chamber is open at one side of member 12, which is the outer or front side. A passage 12d extends from chamber 12c to the opposite side of member 12, which passage is of much less transverse dimension than chamber 12c, so that a shoulder 12e is formed at the rear side of said chamber. The flexible member 11, which is usually in the form of a rope or cable, extends through passage 12d and has a terminal portion 11a having an enlarged means therein which can conveniently be a knot. The enlarged portion or knot 11a is adapted to abut against a disc 13 disposed at the rear side of chamber 12c and having a flange extending thereabout so that the same is of cup-shaped form. Disc 13 has a central aperture through which member 11 extends, said aperture being aligned with passage 12d and the enlarged means or knot 11a abuts against member 12. Withdrawal of member 11 through passage 12d is thus prevented. Member 12 is provided adjacent the open side of chamber 12c with an annular groove 12f which extends about said chamber. A closed rounded cap 14 has an outwardly extending flange 14a and flange 14a is adapted to be sprung into groove 12f to secure cap 14 to member 12.

In the use of the device, cable 11 will be attached to the proper member of the starting device and will be passed through lug 10a. Said cable can then be passed through passage 12d in member 12, member 13 having previously been placed in position in member 12. The enlarged means or knot 11a can now be formed or placed on member 11 and the same disposed in chamber 12c against disc 13. The member 11 is usually resiliently pulled into the housing 10 so that the knot 11a will be pulled against disc 13 and the handle member 12 will be held in posi-
tion against lug 10a. The cap 14 can now be placed in position by springing flange 14a into the groove 12f. Member 12 will yield sufficiently for this placement. Cap 14 is now securely held in position and the open side of chamber 12e is closed and the terminal end and enlargement on cable 11 is covered or concealed. In starting the motor, handle 12 is pulled upon, which pulls upon cable 11 and handle 12 is then released. The enlarged means or knot 11e of course prevents cable 11 from being pulled out through passage 12d.

From the above description it will be seen that I have provided a simple and efficient structure of handle. The cable 11 is efficiently disposed and can be pulled upon as desired. The cap 14 closes the opening at one side of handle 12 so that dirt or water is excluded. The end of cable 11 with the enlargement thereon is also protected from dirt, water, oil or grease. A very compact and efficient structure is thus produced. The member 12 is preferably made of rubber or rubber-like material so that it is waterproof and does not readily absorb any grease or dirt. The device has been amply demonstrated in actual practice, found to be very successful and efficient and is being commercially made.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A handle structure for the pull cord of an outboard motor having in combination, a member made of rubber and comprising a substantially knoblike front end with a substantially cylindrical shank at its rear end, said member having a passage extending axially therethrough, said passage having a greatly enlarged cylindrical portion at its front end opening at said front end and forming a shoulder at its inner end, said member having an annular groove in the wall of said enlarged portion of said passage adjacent its front end, a cord extending through said passage and having a knot disposed in said enlarged portion and adapted to engage said shoulder and a substantially cylindrical metal cap having a projecting annular terminal flange adapted to be disposed in said groove by deformation of said rubber member.

2. The structure set forth in claim 1, and a cup-like washer disposed in said enlarged portion against said shoulder and engaged by said knot, said washer having a peripheral flange fitting said enlarged portion.

3. The structure set forth in claim 1, said member having a projection at the rear end of said shank of small longitudinal extent and having tapering sides adapted to fit into a recess in a lug contacted by said member.

DANIEL A. ARMSTRONG.

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