Dec. 6, 1966 R. M. KERR 3,290,040

CLAMP

Filed April 6, 1964

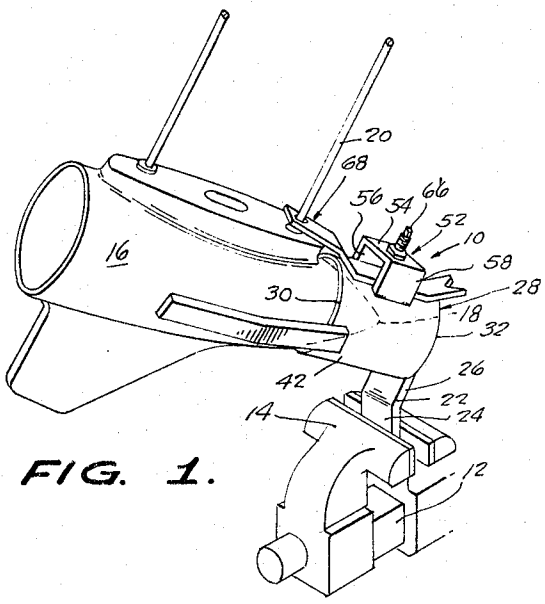


FIG. 1.

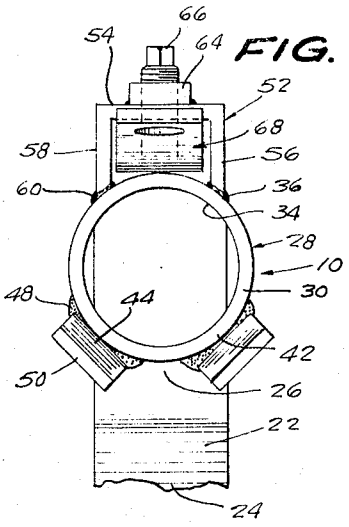


FIG. 2.

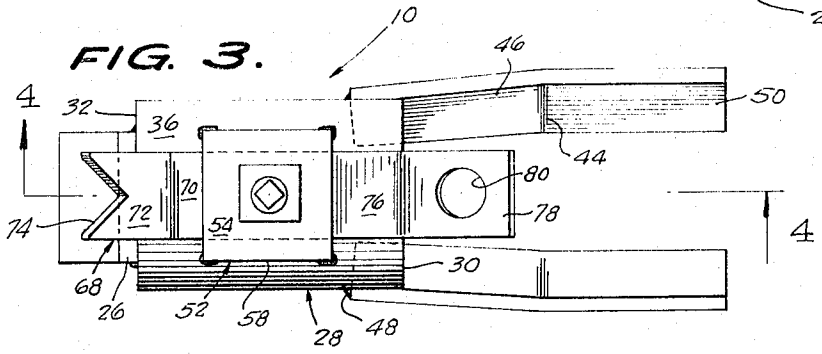


FIG. 3.

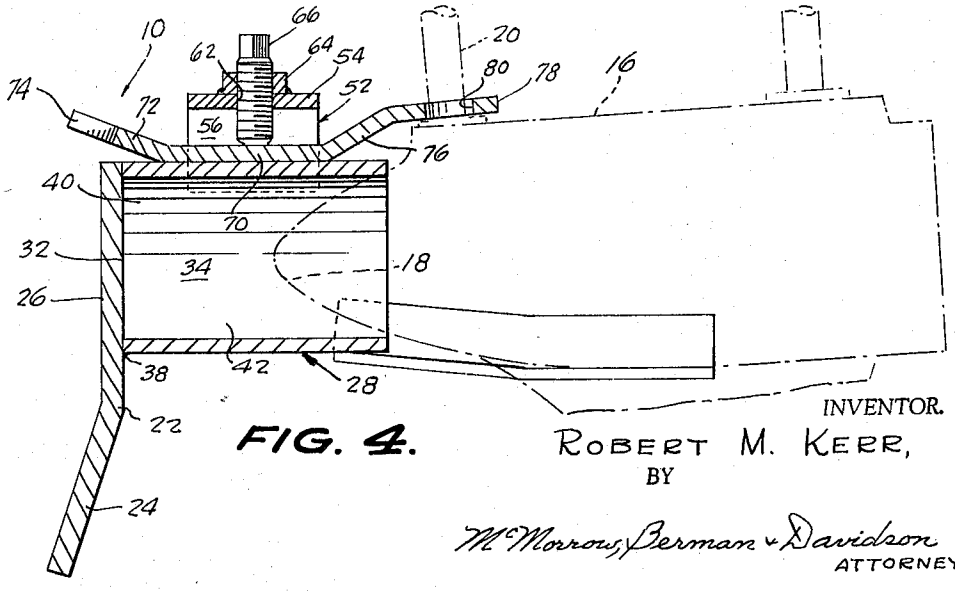


FIG. 4.

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3 Claims. (Cl. 269—95)

This invention relates to a clamp or work holder, and more specifically, to a work-holding clamp adapted for use with a conventional vise means to hold the lower unit casing of an outboard motor or the like.

A basic objective of this invention resides in the provision of a lower unit holding fixture or clamp to support the gear casing or lower unit housing of an outboard motor during repair and service operations, the unit being supported in a convenient, secure, safe and rigid position.

Another object is to provide a work holder for use with an outboard motor which does not require the operator to handle the clamp means during operations on the motor, thus leaving both hands free for the performance of service operations.

Another object is to supply a work holder for an outboard motor unit housing as described above which rigidly and securely supports the unit, but which does not damage the unit.

Among the additional objects and advantages of this invention are the provision of a holder as described above which is noncomplex in construction and assembly, inexpensive to manufacture and sell, and durable in use.

Other and further objects and advantages of the invention will become apparent to those skilled in the art from a consideration of the following specification when read in conjunction with the annexed drawing, in which:

FIGURE 1 is a perspective view of a clamp means according to this invention supporting a lower unit of an outboard motor in a vise means;

FIGURE 2 is an enlarged, fragmentary, front elevational view of the clamp;

FIGURE 3 is a top plan view of the clamp; and

FIGURE 4 is a sectional view, taken substantially on the section line 4—4 of FIGURE 3, looking in the direction of the arrows, and showing the position of the unit housing in phantom lines.

Proceeding to a more detailed description of the invention, the clamp or work holder hereof is generally designated in the drawing by reference numeral **10**. The clamp **10** is adapted for use with a conventional vise **12** with jaws **14** or the like, in supporting the lower unit or gear housing **16** of an outboard motor. The housings **16** conventionally include a pointed end portion **18**, and may have upwardly projecting rods **20** mounted thereon or other types of upward projections (not shown).

The clamp **10** includes an upstanding, substantially rectangular arm member **22** having a vertical lower portion **24** clamped between the vise jaws **14** to fix the clamp in a selected position therein, and an upper, angularly related portion **26**.

An elongated, tubular sleeve member **28** is provided, and has opposite ends **30** and **32**, and inner and outer walls **34**, **36**, respectively. The sleeve **28** is fixed to the upper portion **26** of the arm **22** by welds **38** connecting the end **32** thereto, and in such fixed location has an upper side portion **40** and lower side portion **42**. Secured to the lower side portion **42** on the outer wall **36**, adjacent the open end **30** of the sleeve, are a pair of elongated, outwardly projecting, substantially rectangular arm members **44**, each having an inner, outwardly angled portion **46** fixed by welds **48** to the outer wall, and an outer portion **50** arranged substantially parallel to the sleeve. As will be noted in FIGURE 2, the fixed arms **44** are arranged at substantially 45° radii taken from the center of the sleeve.

Secured to the sleeve outer wall **36** on the upper portion **40** thereof is a substantially U-shaped bracket **52** comprising a bight portion **54** from the sides of which depend a pair of arms **56**, **58** secured by welds **60** to the upper side **40** at substantially a central location, as seen in FIGURE 2. The bight portion is centrally apertured at **62** and has a threaded nut **64** secured thereto carrying a locking screw **66** movable through the bight aperture.

For clamping of the housing **16**, a movable clamping arm **68** having a central flat portion **70**, and a first, upwardly angled end portion **72** supplied with a V-shaped notch **74** is supplied. A second end portion of the movable arm includes an upwardly angled member **76** with a flat end **78**, the end **78** having an opening **80** formed therein.

As seen in FIGURES 1 and 4, the casing **16** is mounted in such manner that the end **18** projects into the open end **30**, the main body of the casing resting on the fixed arms **44**. The housing disclosed in the drawing has a projected rod, and where a housing of this type is to be mounted, the rod is extended through the opening **80** of the movable clamping arm **68**, and the screw means **66** is suitably tightened. In those instances where other types of units are encountered, the opposite end of the movable arm may be employed by a reversal of this element, and the notch **74** engaged with a projecting portion or notch in the casing.

Having described and illustrated an embodiment of this invention in some detail, it will be understood that this description and illustration are offered merely by way of example, and that the invention is to be limited in scope only by the appended claims.

What is claimed is:

1. A clamp for the lower unit casing of an outboard motor, for use in a vise or the like, the clamp comprising:

an upstanding arm member including a bottom portion and an upper portion angularly related thereto, the bottom portion being mounted in the vise;

an elongated, tubular sleeve member having opposite ends, upper and lower side portions, and inner and outer walls, one of the ends being fixedly secured to the upper portion of the arm;

a pair of fixed arm members secured on the sleeve outer wall adjacent the other end thereof, each arm having an outwardly angled inner portion and an outer portion substantially parallel to the wall, the fixed arms being arranged adjacent one side of the sleeve;

a substantially U-shaped bracket having a bight portion and a pair of side arms, the arms being secured to the sleeve outer wall intermediate the ends thereof on the upper portion;

the bight portion having a threaded opening therein;

a clamping screw mounted in the threaded opening; and

a movable clamping arm, including a central section and outwardly angled end portions, the central section being clamped between the screw and the sleeve outer wall with the end portions engaging the unit casing.

2. A work holding clamp for a unit having an outer surface, the clamp comprising:

an upstanding arm member;

a substantially tubular sleeve member, having an outer surface and having a pair of ends, secured to the arm member;

a pair of longitudinal substantially parallel projecting arm members fixed to the outer surface of the sleeve member and having inner work supporting surfaces for contacting the outer surface of the unit at spaced apart locations;

a movable clamping arm, longitudinally adjustable in a direction substantially parallel to the tubular sleeve

member, having an end portion with work securing aperture means thereon;

the end portion of the movable clamping arm engaging the unit at a location spaced from the last named location; and

changeable fastening means connecting the movable clamping arm to the sleeve to extend outwardly a distance such that the unit is held against the open end of the sleeve member and the fixed arm members.

3. A work holding clamp for a unit having an exterior surface and having an interior and being open at at least one end, the clamp comprising:

an upstanding arm member;

a substantially tubular sleeve member; having an outer surface and having a pair of ends, secured to the arm member;

a pair of longitudinal substantially parallel projecting arm members fixed to the outer surface of the sleeve member and having inner work supporting surfaces for contacting the outer surface of the unit at spaced apart locations;

the open end of the unit extending outwardly of the projecting arm members;

a movable clamping arm, longitudinally adjustable in a direction substantially parallel to the tubular sleeve member and having an end portion with work securing aperture means thereon;

the end portion of the movable clamping arm engaging the unit at a location spaced from the last named locations; and

changeable fastening means connecting the movable clamping arm to the sleeve member to extend outwardly a distance such that the unit is held against the open end of the sleeve member and the fixed arm member.

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