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Monckton

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[54] **MOUNTING OF OUTBOARD MOTORS**

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[51] **Int. Cl.** **B63h 21/36**

[58] **Field of Search** 248/4, 284; 115/17

[56] **References Cited**

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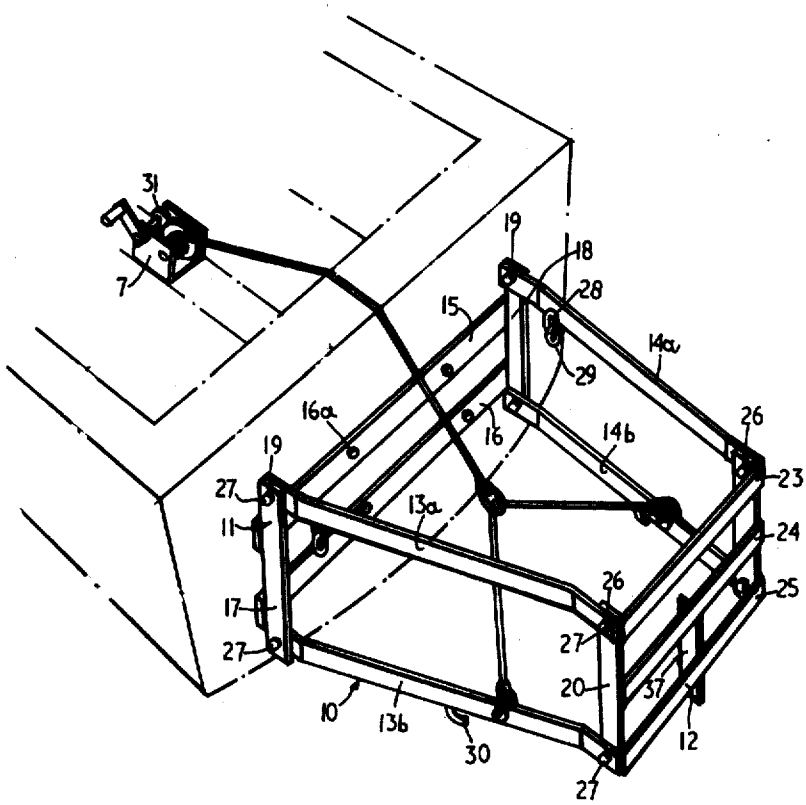
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[57] **ABSTRACT**

An adjustable mounting bracket for an outboard motor comprising a support for attachment to the transom of a boat, a support to which an outboard motor can be affixed and two pairs of parallel arms pivotally interconnecting the supports, the two pairs of arms converging towards one another as they approach the support to which the outboard motor can be affixed.

5 Claims, 4 Drawing Figures



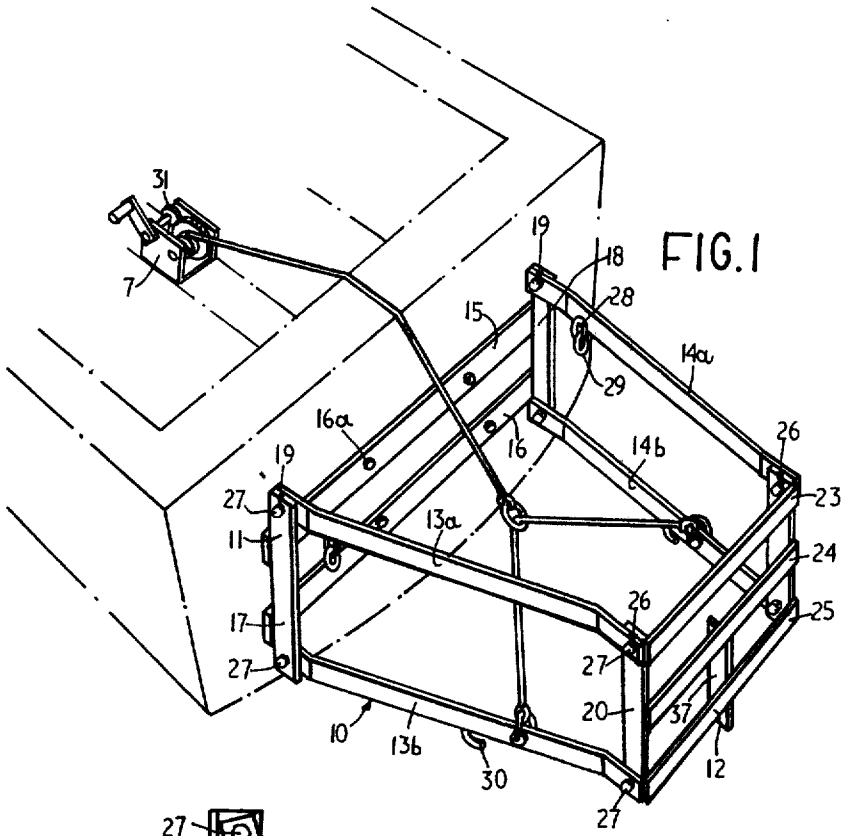

31
7
19
18
28
15
14a
29
16a
16
14b
26
19
23
27
13a
11
24
17
26
25
27
27
20
37
10
13b
30
12
27

FIG.1

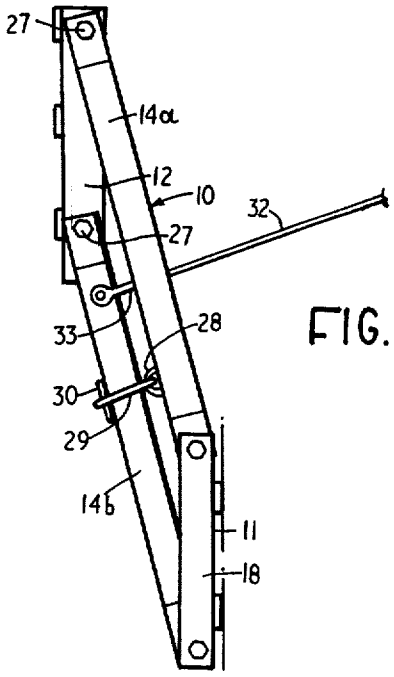

27
14a
12
10
32
27
33
28
30
29
14b
11
18

FIG.2

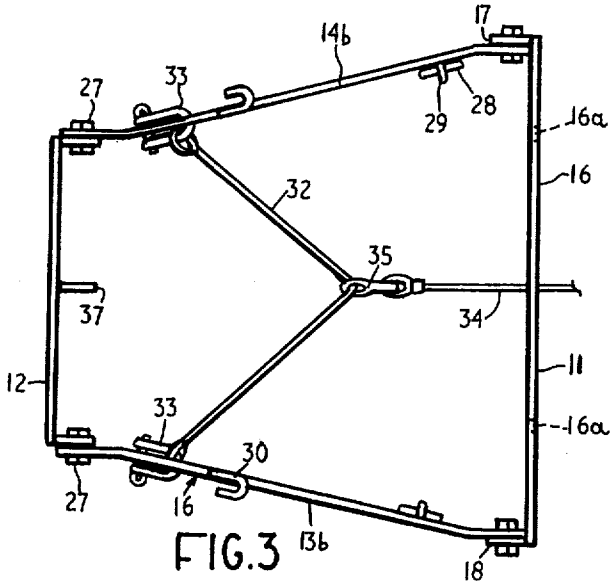

17
14b
27
33
29
28
16a
16
32
35
37
34
11
12
33
16a
30
27
16
13b
18

FIG.3

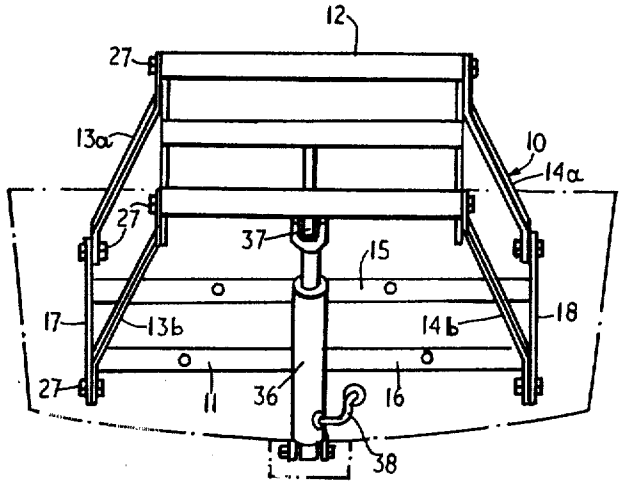

12
27
13a
10
14a
27
37
15
17
13b
14b
18
27
11
36
16
38

FIG.4

MOUNTING OF OUTBOARD MOTORS

The present invention relates to means for mounting an outboard motor on or in a boat.

Conventionally an outboard motor is mounted on the transom of a boat by simply clamping the motor to the transom. The motor operates in a substantially vertical attitude and is pivotably connected to the mounting brackets so that it may be tilted to raise the propellor from the water, it being normally supported in the tilted position by friction.

While the arrangement described above is generally satisfactory for small boats intended for use with outboard motors and for small sailing dinghies, there are circumstances in which it is not satisfactory.

One such circumstance arises in the case of larger sailing boats or inboard powered motor boats with which it is desired to use an auxiliary motor. In such cases the height or shape of the transom of the boat may not permit the usual tilting movement of outboard motors to raise the propeller and keep the gear case out of the water when not in use. Under such circumstances it is usual to provide a fixed mounting bracket attached to and projecting from the transom but if there is to be sufficient room for the motor to tilt, the bracket must project at a considerable distance from the boat.

Another circumstance in which difficulties arise is in the case of fishing boats of which the stern must be left unobstructed. In such boats it is usual to mount the outboard motor in a well formed within the boat. The difficulty that arises in this case is that the well must be made long enough to enable the motor to be tilted on its mounting to bring the propellor out of the water thus taking up a considerable amount of room in the boat.

It has been proposed to provide a mounting bracket, for attachment to the stern of a boat, which allows the motor to be raised and lowered substantially vertically by means of a parallel motion linkage connecting a motor attachment plate to a mounting plate attached to the stern of the boat. The existing mounting brackets of this type have been unduly complex in construction.

When a boat powered by an outboard motor is to be turned it is necessary to pivot the outboard motor on its mounting to impart a sideways thrust to the boat. If a boat is to be turned rapidly through a tight turn a considerable force will be applied to the motor mounting. The known outboard mounting brackets have not achieved success at least in part because the brackets have had to be of very heavy construction to resist the forces generated by the sideways thrust of the motor when the boat is being turned. The present invention is directed to the provision of a simple, relatively lightweight construction which will satisfactorily resist the forces imposed upon it. As a consequence of the realisation that an outboard motor mounting bracket can be constructed in a simple, unbraced manner it is possible to construct the bracket from elements of a single cross sectional shape. This simplification in the materials necessary to construct the bracket enables the bracket to be produced more efficiently and economically than known brackets of a superficially similar nature.

The present invention consists in an adjustable mounting bracket for an outboard motor comprising a first mounting means for securing to the transom or other suitable part of a boat, a second mounting means to which an outboard motor may be attached in a substantially vertical position, two pairs of parallel arms constituting a pair of spaced apart parallel linkages connecting said first and second mounting means to allow the outboard motor to be raised or lowered relative to the boat and means for maintaining the bracket in any desired relative position, characterised in that the two pairs of parallel arms converge towards one another as they approach the second mounting means.

The arrangement of the pairs of parallel arms to converge towards one another as they approach the motor mounting means enables the sideways thrust to be satisfactorily resisted without the provision of very heavy bracket members and without the provision of bracing members.

In order that the nature of the invention may be better understood a preferred form thereof is hereinafter described by way of example with reference to the accompanying drawing in which:

FIG. 1 is a perspective view of an outboard motor mounting bracket according to this invention.

FIG. 2 is a side view of the bracket depicted in FIG. 1 in a raised position,

FIG. 3 is a bottom plan view of the bracket depicted in FIG. 1.

FIG. 4 is a perspective view from the rear of a further embodiment of the invention.

The outboard motor bracket **10** comprises a first support frame **11** for attachment to the transom of a boat, a second support frame **12** on which a motor can be suspended and two pairs of parallel arms **13***a*, **13***b* and **14***a*, **14***b* constituting a parallel motion linkage between the first and second frames **11** and **12**.

The first support frame **11** includes a pair of spaced apart horizontal members **15** and **16** which are provided with bolt holes **16***a* through which bolts, or screws, may extend to fasten the outboard motor bracket **10** to the transom of a boat. A pair of vertical members **17** and **18** are welded to the ends of the horizontal members **15** and **16** and interconnect them; the plane of each of the vertical members **17** and **18** being at right angles to a plane containing both the horizontal members **15** and **16**. The ends of the vertical members **17** and **18** which extend vertically beyond the ends of the horizontal members, are provided with holes **19** through which extend bolts to pivotally connect the first support frame **11** with the two pairs of parallel arms **13***a*, **13***b*, **14***a* and **14***b*.

The second support frame **12** comprises a pair of spaced vertical members **20** and **21** interconnected by three spaced apart horizontal members **23**, **24** and **25** which are welded at their ends to the vertical members. The horizontal members **23**, **24** and **25** are disposed in a plane parallel to the plane of the horizontal members **15** and **16** of the first support frame **11**, and are shorter in length than those horizontal members. The vertical members **20** and **21** are disposed in planes parallel to the planes containing the vertical members **17** and **18**, and the ends of the vertical members **20** and **21** are also provided with holes **26** through which bolts may project to pivotally connect the second support frame **12** to the arms **13***a*, **13***b*, **14***a* and **14***b*.

The arms interconnecting the support frames are arranged in two pairs **13***a* and **13***b* and **14***a* and **14***b* the members of each pair being parallel to one another. As the first support frame **11** is wider than the second support frame **12** the arms **13***a* and **14***a* converge towards one another as do the corresponding arms **13***b* and **14***b*.

An end portion of each arm is cranked over such that it extends parallel to the vertical member to which it is to be connected. Each end portion is provided with a bolt hole through which bolts **27** project into holes **19** and **26** to pivotally interconnect the arms with the frames **11** and **12.**

Each of the horizontal and vertical members, as well as each of the arms is made from identical stock. In this preferred embodiment of the invention the components of the bracket are all formed from 1 inch × ¼ inch mild steel which is galvanised after fabrication.

The upper arms **13***a* and **14***a* are each provided adjacent the first support frame with a chain link **28** which is welded to the arm and to which is linked a further chain link **29.** Each of the chain links **29** is adapted to engage with a hook **30** welded to the corresponding lower arm **13***b* and **14***b* when the bracket **10** is in a raised position. By engaging the hooks **30** with the chain links **29** on each side of the bracket a motor mounted on the bracket can be maintained in a raised position which keeps the motor fully raised out of the water.

The bracket is provided with raising and lowering means comprising a bridle **32** connected at either end, through shackles **33,** to arms **13***b* and **14***b*. A wire lead **34** is connected to the bridle through shackle **35** and extends over the transom of the boat to a winch **31** mounted inside the boat on the skeg.

In use the bracket, and the motor mounted thereon, can be lowered by raising the second support from **12** to allow the chain links to be disconnected from the hooks and by then lowering the second support frame **12** to the desired level. The height of the frame **12** can be set by locking the winch at the point corresponding to the desired depth of the motor in the water.

In an alternative embodiment of the invention shown in FIG. **4,** the relative height of the second support frame **12** is adjusted by the use of a hydraulic cylinder **36** connected at its lower end to the skeg on the exterior of the boat and at its upper end to lug **37** which extends vertically downwardly from the lower edge of the second supporting frame **12.** The hydraulic cylinder **36** is connected through a hydraulic pressure line **38** to a source of hydraulic pressure (not shown).

In a still further embodiment of the invention the motor may be raised and lowered manually i.e. without the aid of a winch or the like. The motor can be maintained in position by a rope lead connected to the bridle **32** which can be fastened about a cleat on the skeg; alternatively the single link **29** could be replaced by a plurality of interconnected links to enable the motor to be adjusted to a plurality of predetermined position. In a simpler form an adjustable stop member may be provided such that the motor has two stable positions, an upper position in which link **29** engages hook **30** and a lower position in which arms **13***b* and **14***b* rest on the stop member.

The bracket can be formed of any suitable material such as galvanised mild steel, stainless steel or anodised aluminum. Alternatively the elements could be moulded from a stress resistant reinforced plastics material. The bracket is preferably coated with a corrosion resistant material if it is not manufactured from a corrosion resistant material.

In use the second mounting means may be provided with a wooden block on at least one side in order to increase the thickness of the means such that the clamping arrangement of the outboard motor may be more easily and securely clamped about the second mounting means. In one preferred embodiment of the invention a half inch sheet of waterproof plywood is provided on each side of the second mounting means for the purpose described above.

I claim:

1. An adjustable mounting bracket for an outboard motor comprising a first mounting means for securing to the transom or other suitable part of a boat, a second mounting means to which an outboard motor may be attached in a substantially vertical position, said first and second mounting means being respectively situated in first and second parallel planes, two pairs of parallel arms constituting a pair of spaced apart parallel linkages connecting said first and second mounting means to allow the second mounting means to be raised or lowered relative to the first mounting means while maintaining said second plane parallel to said first plane, and means for maintaining the bracket in any desired relative position, characterised in that the two pairs of parallel arms are respectively situated at their portions which extend between said first and second mounting means in planes which converge towards one another as they approach the second mounting means, said second mounting means having between said pairs of parallel arms a width smaller than the width of said first mounting means between said pairs of parallel arms and all of said parallel arms having substantially equal lengths and maintaining said second plane parallel to said first plane in any relative position of the bracket, the space between said converging planes being completely free of any bracing or strengthening components extending between said arms so that the latter absorb all of the twisting forces or the like encountered by the bracket.

2. An adjustable mounting bracket as claimed in claim **1** in which means are provided to mechanically raise and lower the second mounting means relative to the first mounting means.

3. An adjustable mounting bracket as claimed in claim **2** in which the raising and lowering means comprise a hydraulic cylinder acting between the second mounting means and the skeg of a boat to which the mounting bracket is affixed.

4. An adjustable mounting bracket as claimed in claim **1** in which means are provided to interconnect the arms of at least one of the pairs of arms to retain the second mounting means in a predetermined position relative to the first mounting means.

5. An adjustable mounting bracket as claimed in claim **1** and wherein said first and second mounting means as well as said two pairs of parallel arms are made up only of bars of uniform cross-sectional configuration.

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