United States Patent

[11] **3,570,440**

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[33] **Netherlands**
[31] **6,802,686**

[54] **MARINE ANCHOR**
6 Claims, 2 Drawing Figs.

[52] **U.S. Cl.** **114/206**
[51] **Int. Cl.** **B63b 21/30**
[50] **Field of Search** 114/206, 207, 208

[56] **References Cited**

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Primary Examiner—Trygve M. Blix
Attorney—Young & Thompson

ABSTRACT: A marine anchor is in the form of a flat body having plow-shaped flukes extending from one or both flat sides of the anchor. The flukes dig into the soil to a depth limited by contact of the flat body with the soil. A leeboard is disposed on the same side of the body as the flukes.

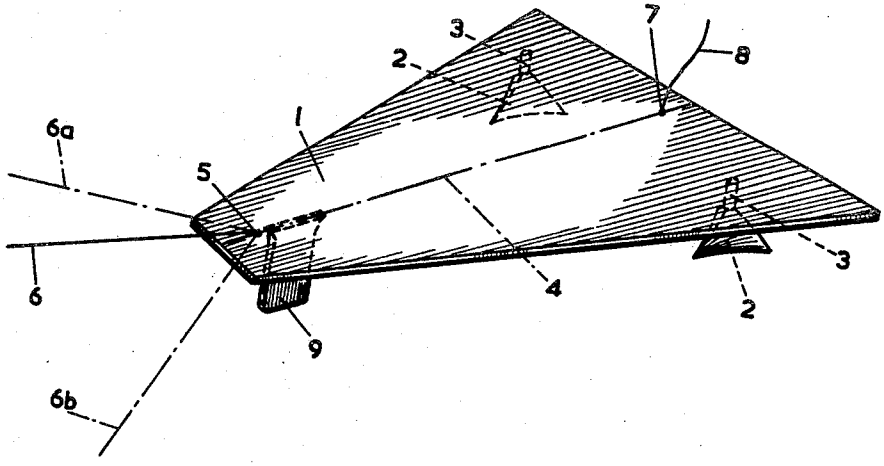


FIG. 1

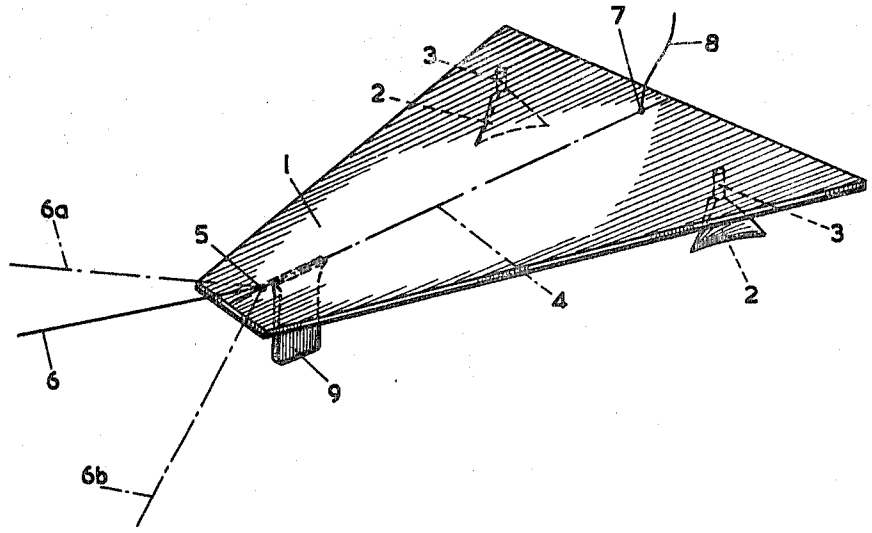
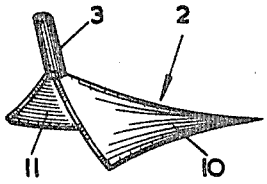


FIG. 2



INVENTOR

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ATTORNEYS

MARINE ANCHOR

The present invention relates to marine anchors, more particularly of the type having at least one fluke secured to the anchor body by means of an arm.

An object of the present invention is to provide an anchor having increased gripping force.

Another object of the present invention is the provision of an anchor the depth of whose penetration is limited.

Yet another object of the present invention is the provision of an anchor which will penetrate to a controlled depth upon tension in the anchor chain or cable.

Still another object of the present invention is the provision of an anchor that will grip the marine soil in any position in which it falls.

The invention also comtemplates the provision of an anchor of reduced tendency to dig into the soil nose first.

Finally, it is an object of the present invention to provide an anchor which will be relatively simple and inexpensive to manufacture, easy to emplace in the soil and remove, and rugged and durable in use.

Other objects and advantages will become apparent from a consideration of the following description, taken in connection with the accompanying drawing, in which:

FIG. 1 is a somewhat schematic view of an anchor according to the present invention, showing the principal relationships of the parts and various positions of the anchor cable; and

FIG. 2 is a perspective view of an anchor fluke and arm therefor, for use with the anchor of FIG. 1.

Referring now to the drawing in greater detail, there is shown a marine anchor comprising a flat anchor body 1 which is generally plate shaped. Body 1 is of course not buoyant in water, so that it sinks, and may be of cast iron or other conventional materials for marine anchors. Body 1 may be of any suitable shape and is shown in the drawing in the form of a trapezoil; but it will be understood that it may take other shapes, for example triangular. Body 1 may be an imperforate plate, or may have perforations so as to speed its fall through the water and also facilitate its dislodgement from marine soil. Body 1 may even be in the form of an open framework.

On its underside, body 1 is provided with two flukes 2 each of which is secured to a flat surface of body 1 by means of an arm 3. In the illustrated embodiment, there are two flukes disposed symmetrically on opposite sides of the center line 4 of body 1; but it will be understood that there may only be one fluke, which would then lie on centerline 4, or three or four or more flukes spaced apart about a side of body 1. It is also possible to provide flukes on opposite sides of body 1, so that the anchor will be effective regardless of which of its two sides is down when the anchor settles.

In its forward end, body 1 is provided with fastening means 5 to which is secured the anchor cable or anchor chain 6. Fastening member 5 is preferably on the same side as the flukes. On the opposite side from the flukes, near the rear of body 1, fastening means 7 is provided to which is secured a cable 8 to heave the anchor out of the marine soil so as to raise the anchor.

In the illustrated embodiment, in which the body 1 of trapezoidal shape, the forward and rear edges of body 1 are parallel to each other and perpendicular to centerline 4. Whether the body 1 is of trapezoidal shape or triangular, its nose will ordinarily be relatively narrow. When the anchor settles, it is possible that the nose will be inclined downwardly and will have a tendency to dig into the marine soil when cable 6 is tightened. To help prevent this, the nose or forward edge of body 1 may be bent over in a direction facing away from the side which bears the flukes. When flukes are provided on both sides, the nose can have a thickened and rounded front edge.

It has also been found, surprisingly, that it is of assistance in

preventing the nose from digging into the marine soil if a leeboard 9 is provided near the nose on the fluke side of the body 1. The leeboard has the form of a flattened plate and is perpendicular to the plane of body 1 and parallel to or coincident with center line 4. In addition to helping prevent the nose from digging into marine soil, leeboard 9 also unexpectedly improves the gripping of the flukes when cable 6 is tensioned, whether cable 6 is in the full-line position shown in FIG. 1 or in slewed positions such as are shown at *6a* and *6b* in FIG. 1.

It is also possible to replace leeboard 9 with a fluke at or adjacent the position that leeboard 9 would otherwise occupy, with many of the same advantages that leeboard 9 affords.

It will of course be understood that upon tensioning cable 6, the flukes 2 tend to dig into the marine soil to a depth limited by the body 1, which tends to rest flat in contact with the soil when the anchor is fully set.

In general, the flukes are plow shaped. In the illustrated embodiment, they consist of two plates 10 and 11, as best seen in FIG. 2, each of which may if desired be triangular, preferably right triangular with the hypotenuses joined along a raised but downwardly forwardly inclined centerline. Plates 10 and 11 thus incline downwardly outwardly away from each other and are upwardly concave, like a plowshare. If desired, the grip of the flukes can be improved by corrugating one or more portions of plates 10 and 11.

Although the present invention has been described and illustrated in connection with preferred embodiment, it is to be understood that modifications and variations may be resorted to without departing from the spirit of the invention, as those skillled in this art will readily understand. Such modifications and variations are considered to be within the purview and scope of the present invention as defined by the appended claims.

I claim:

1. A marine anchor comprising a flat body, at least one fluke secured to and projecting transversely from at least one side of said flat body, and a leeboard secured to and extending perpendicularly from the same side of the body as the fluke and parallel to the direction in which the fluke extends, said body being narrower at its forward end than at its rearward end, said leeboard being disposed adjacent the forward end of the body and said fluke being disposed adjacent the rear end of the body.

2. An anchor as claimed in claim 10, there being a plurality of flukes on the same side of said body, said flukes being disposed on opposite sides of the longitudinal centerline of the body.

3. A marine anchor comprising a flat body, at least one fluke secured to and projecting forwardly and downwardly from said flat body, and a leeboard secured to and extending downwardly from the same side of the body as the fluke, said leeboard being disposed in a vertical plane parallel to the direction in which the fluke extends forwardly.

4. An anchor as claimed in claim 3, said body being elongated in said direction and said leeboard being disposed adjacent the forward end of the body and said fluke being disposed adjacent the rear end of the body.

5. A marine anchor comprising a flat body, and at least one fluke secured to and depending from the underside of said flat body, said fluke being plow-shaped and having a pair of upper surfaces that incline forwardly downwardly and that incline downwardly away from each other, said fluke surfaces being upwardly concave.

6. An anchor as claimed in claim 5, said body being elongated in a front to rear direction, said fluke extending downwardly away from said body and terminating in a forwardly directed point, and an anchoring cable attached to the forward end of said body.

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,570,440 Dated Mar. 16, 1971

Inventor(s) Hendrik Pot

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the cover sheet [73]

"N.V. Industrieele Handelscombinatie, Netherlands" should read -- N.V. Industrieele Handelscombinatie Holland --.

Signed and sealed this 11th day of April 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Paten