

[54] KITE TAIL

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[58] Field of Search..... 244/153 R, 153 A, 154,
244/155 R, 115 R; 46/53; 43/42.2, 42.21

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Primary Examiner—Milton Buchler

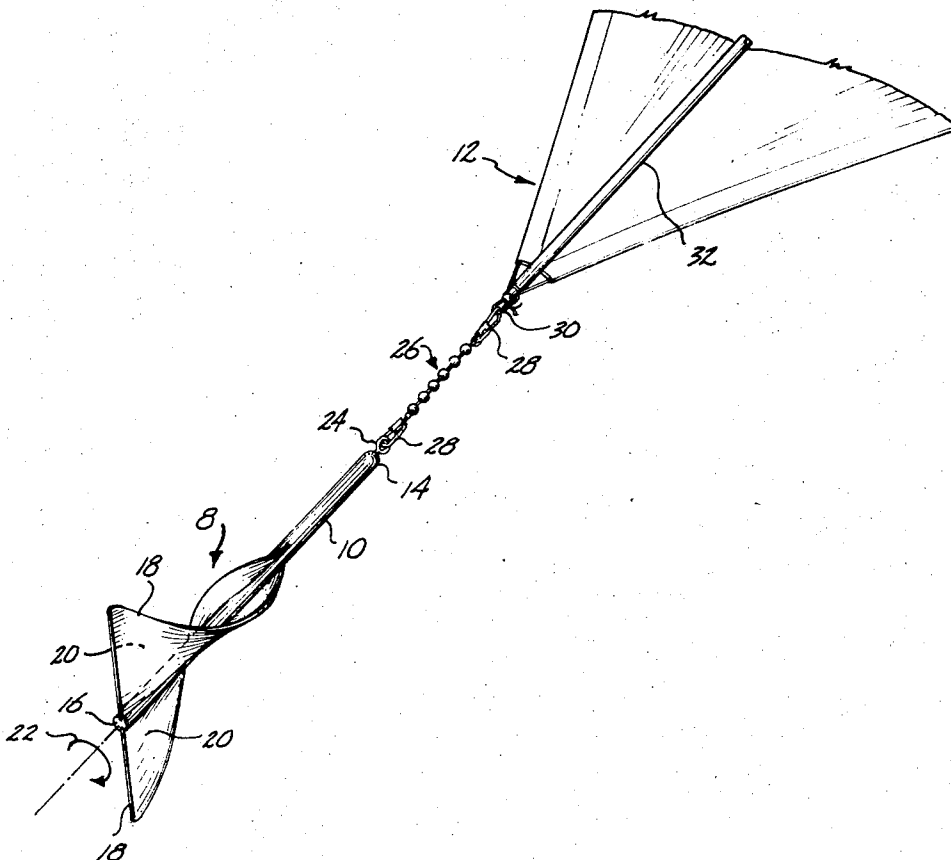
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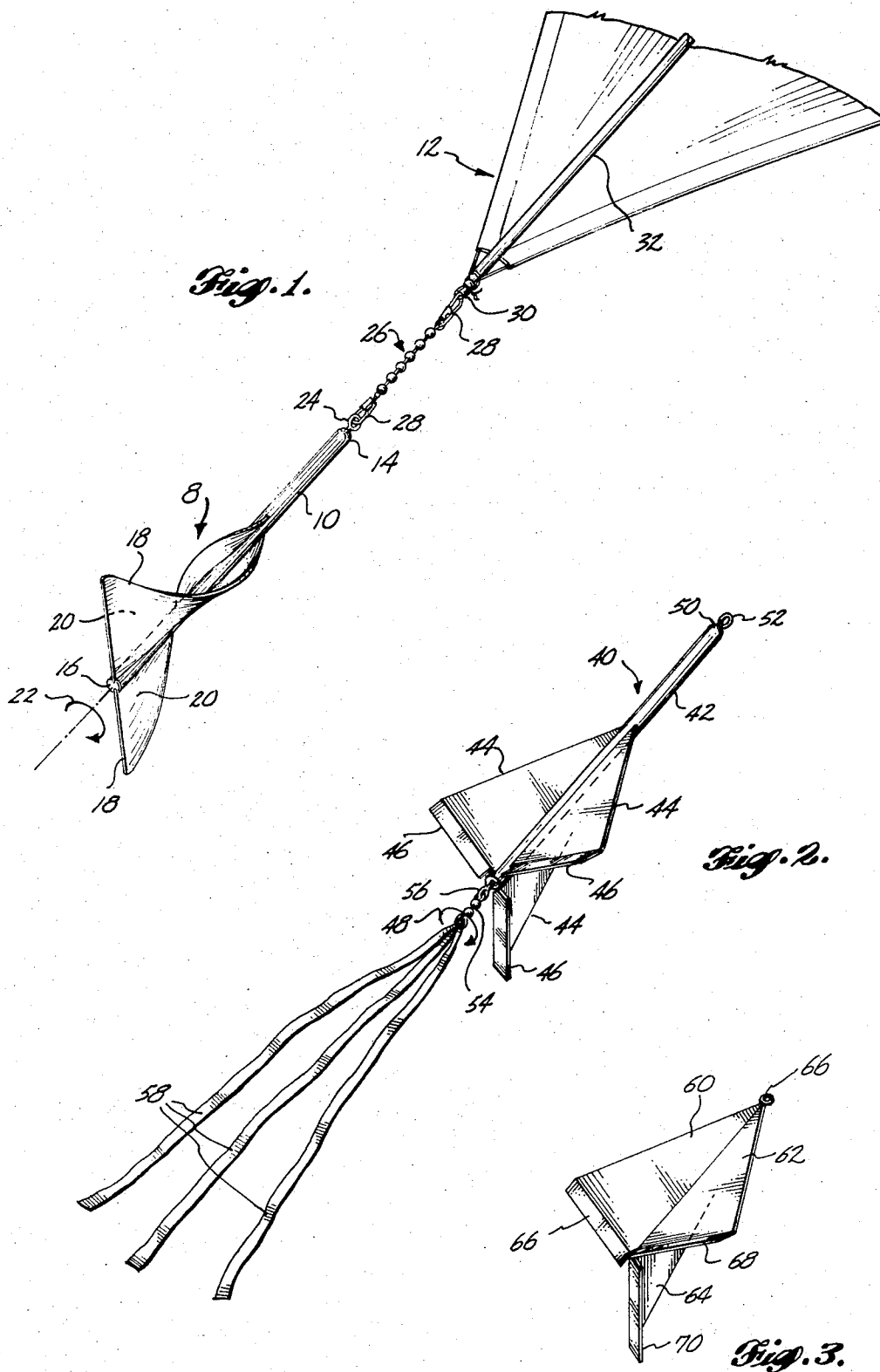
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[57] ABSTRACT

A stabilizing tail for a kite has an elongate cylindrical body, a low friction swivel for attaching the forward end of the body to the tail of a kite, and at least one rudder which causes the body to rotate in a predetermined direction when an airstream passes thereby. The kite tail improves aerodynamic stability and dampens oscillatory motions of a kite.

6 Claims, 3 Drawing Figures





KITE TAIL

BACKGROUND OF THE INVENTION

This invention relates to a stabilizing device for a conventional kite, and more particularly to a rotating kite tail.

It is a broad object of the present invention to provide an improved kite tail which stabilizes a kite in flight and furthermore provides a simple, easy-to-handle device to replace the conventional streamer type kite tails. Further objects of the present invention are to provide a stabilizing device for a kite which improves aerodynamic stability through rotation and drag, which dampens lateral oscillations of a kite in flight and which is attractive and inexpensive to manufacture.

SUMMARY OF THE INVENTION

The present invention therefore provides a stabilizing device for a kite comprising a body having a rotational axis, rudder means attached to the body for causing the body to rotate about the axis in a predetermined direction as an airstream passes thereby, swivel means attached at one end to the body at the axis and attached at the other end thereof to the tail of a kite.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the present invention can be acquired by reading the ensuing specification in conjunction with the accompanying drawings wherein:

FIG. 1 is a isometric view of a first embodiment of the invention attached to the tail of a kite; and

FIGS. 2 and 3 are isometric views of second and third embodiments of the invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

A kite stabilizing device 10 commonly known as a kite tail is shown attached to the rear of a conventional kite of quadrilateral configuration. The kite tail 10 has a body 12 which is preferably made in the shape of a cylinder having an elongate dimension from the front 14 to the rearward portion 16 thereof. A pair of fins 18 are attached to the body 12 in a helical pattern about the longitudinal axis of the body 12. As can be seen, the fins have a forward to rearward righthand curve. As an airstream passes past the fins 18, a force will be exerted upon the fin surface 20 causing the body 12 to rotate in the direction of arrow 22.

The forward end 14 of the body 12 is connected to an eye hook 24 which is in turn connected to a swivel mechanism 26. The swivel mechanism 26 can be of the freely rotating ball and pin type commonly associated with swivel mechanisms in the fishing art. A removal clip 28 is attached to each end of the swivel device 26. The rear hook 28 is attached to the eye 24 while the forward hook 28 is attached to the rear end of the kite 12 by cord 30. Of course, if desired, an eye or other similar attaching device can be connected to the central rib 32 of the kite 12 so that the hook 28 can be more easily attached to the kite 12.

A kite tail 10 of the type shown in FIG. 1 has several advantages over kite tails of the prior art. The tail 10 is substantially shorter than the rag type tails previously utilized. Therefore, it is easier to attach to the kite and is easier to fly with the kite. In addition, the tail 10, through the mechanism of the fins and the rotating

body, provides a sufficient amount of aerodynamic drag to directionally stabilize the kite 12. In addition, the kite tail 10 has sufficient weight, primarily in the body portion 12, to dampen oscillatory motions of the kite created by lateral wind gusts and the like. In addition, the rotation of the body 12, caused by airflow past the fins 18, will provide a constant and directional aerodynamic drag as opposed to conventional type tails. Thus, it is important that the kite tail of the present invention be allowed to freely rotate. This is accomplished through the simple swivel mechanism 26.

The kite tail of the present invention can be easily manufactured from relatively durable materials. The fins are preferably molded from plastic and attached to the body or, most preferably, the body 12 and the fins 18 are integrally molded.

FIG. 2 shows an alternative embodiment to that of FIG. 1. In this embodiment the kite tail 40 also includes a body 42 and a plurality of straight fins 44. In this embodiment the straight fins 44 are arranged at 120° intervals about the longitudinal axis of the body 42. Rudders 46 are affixed to the ends of the fins 44 to provide a surface against which an airstream passing by the kite tail 40 can react and thus rotate the kite tail in the direction of arrow 48.

The forward end 50 of the kite tail 40 contains an eye 52 which can be attached to a swivel mechanism (not shown) similar to that of the embodiment of FIG. 1. This embodiment also contains a second swivel mechanism 54 attached to an eyelet 56 fastener to the rear end of the body 42. Attached to the other end of swivel 54 is a set of streamers 58. The use of streamers 58 is optional and, for example, are most desired when a very light kite having a large surface area is being flown, or if the wind velocity is relatively high. The streamers thus provide additional aerodynamic drag and therefore augment the stability provided by the kite tail 40.

FIG. 3 shows yet another embodiment of the present invention. In this embodiment the body of the kite tail is composed of the juncture of the three fins 60, 62 and 64. Eye 66 is connected to the forward apex of the three fins 60 through 64. Rudders 66, 68 and 70 are fixed to the trailing edge of the fins 60 through 64, respectively, as in the previous embodiment. The rudders 66 through 70 cause the kite tail of FIG. 3 to rotate. As in the previous embodiments a swivel (such as swivel 26 of FIG. 1) can be attached to the eye 66. The swivel in turn can be connected to the kite by conventional methods. If desired a streamer (such as streamer 58 of FIG. 2) can also add to this embodiment through a swivel connector. In the latter instance another eye would be fastened to the rear juncture of the fin 60 through 64 to enable attachment of a streamer.

The present invention has been described in relation to two embodiments thereof. One of ordinary skill in the art will be able to effect various alterations, substitutions of equivalents and other changes without departing from the original concept. It is, however, intended that the invention be limited only by the definition contained in the appended claims.

What is claimed is:

1. A stabilizing device for a kite comprising: an elongated body defining an axis of rotation; two fins affixed to said elongated body in a helical pattern so as to have a forward-to-rearward curve, said fins tapering outwardly from one end of said

elongated body in the direction of said forward-to-rearward curve;

attachment means for attaching said elongated body to a swivel mechanism, said attachment means being affixed to said elongated body at said one end thereof along said axis of rotation; and,

a freely rotating swivel mechanism, one end of said swivel mechanism being attached to said attachment means and the other end of said swivel mechanism being suitable for attachment to a kite whereby when an airstream passes said two fins, a force is exerted by the airstream upon the surface of the fins causing the elongated body to rotate about said axis of rotation.

2. A stabilizing device for a kite as claimed in claim 1 wherein said forward-to-rearward curve of said two fins is a right-hand curve.

3. A stabilizing device for a kite as claimed in claim 2 wherein said swivel mechanism is a freely rotating ball and pin type mechanism; and, wherein said swivel mechanism includes two hooks, one attached to either end of said ball and pin type swivel mechanism for attaching one end of said ball and pin type swivel mechanism to said attachment means and the other end to said kite.

4. A stabilizing device for a kite comprising:
a plurality of generally planar fins affixed together in a manner such that the plates defined by the fins join to define a rotational axis, each of said fins ta-

pering outwardly from one end thereof toward a trailing end, a rudder formed in a trailing end of each of said fins, each of said rudders extending outwardly at an obtuse angle with respect to the plane generally defined by its associated fin;

attachment means for attaching said plurality of generally planar fins to a swivel mechanism, said attachment means being affixed to said plurality of generally planar fins, along said rotational axis, at the end thereof from which said fins taper outwardly; and,

a freely rotating ball-and-pin type swivel mechanism having one end thereof attached to said plurality of fins and the other end thereof being suitable for attachment to a kite whereby when an airstream passes said fins, a force is exerted on said rudders causing said fins to rotate.

5. A stabilizing device for a kite as claimed in claim 4, including an elongated body located along said rotational axis, said fins being affixed together by said elongated body, said attachment means being attached to one end of said elongated body.

6. A stabilizing device for a kite as claimed in claim 5, including two hooks, one of said hooks attaching one end of said ball-and-pin swivel mechanism to said attachment means, and the other of said hooks adapted to attach to the other end of said ball-and-pin swivel mechanism to a kite.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,806,073 Dated April 23, 1974

Inventor(s) Jay D. Christie

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

Claim 4, line 3, delete "plates" and insert therefor
--planes--.

Signed and sealed this 6th day of August 1974.

(SEAL)
Attest:

McCOY M. GIBSON, JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents