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[54] **KITE STRUCTURE**

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[52] **U.S. Cl.** ..... **244/155 A**

[51] **Int. Cl.** **B64c 31/06**

[58] **Field of Search** ..... 244/153 R, 155 A, 244/153 A, 155 R

[56] **References Cited**

UNITED STATES PATENTS

2,388,478	11/1945	Garber	244/155 A
2,472,075	6/1949	Hole	244/155 A
2,839,259	6/1958	Mayne	244/155 A
3,086,738	4/1963	Lubash	244/153 A

FOREIGN PATENTS OR APPLICATIONS

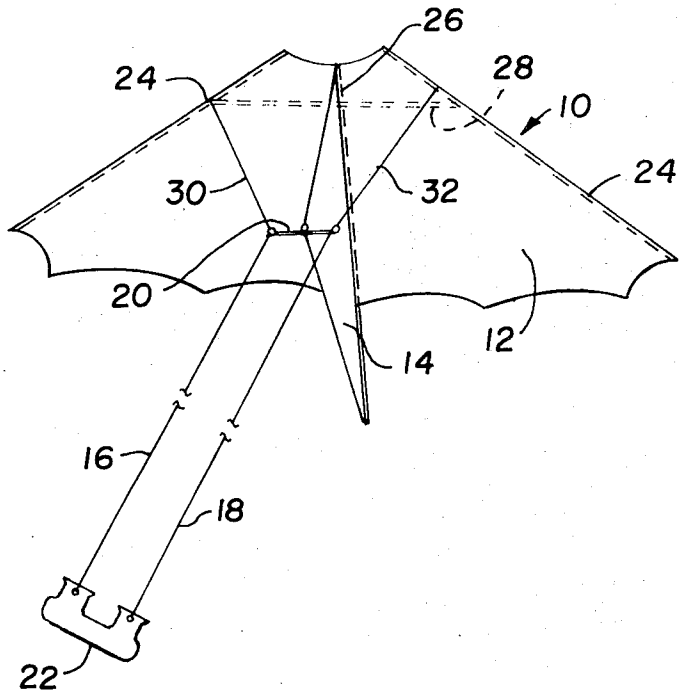
911,223	7/1946	France	244/155 A

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[57] **ABSTRACT**

A kite having a keel which can be manipulated from the ground while flying by a pair of lines to cause the kite to be controlled in its maneuvering and the lines may be connected to a control member on which the lines may be wound when the kite is not flying. This abstract is not to be construed in any way to define or limit the invention set forth below.

11 Claims, 6 Drawing Figures



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SHEET 1 OF 2

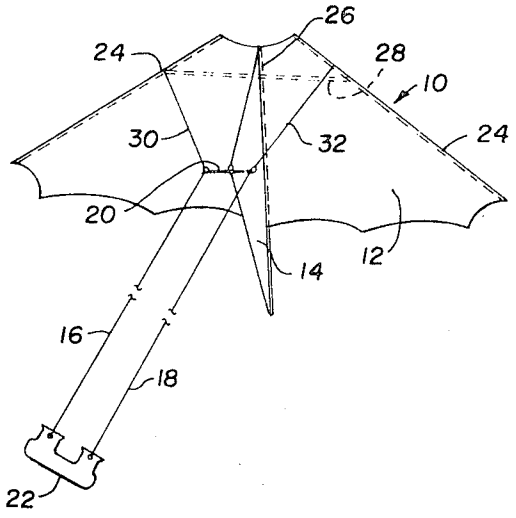


Fig. 1

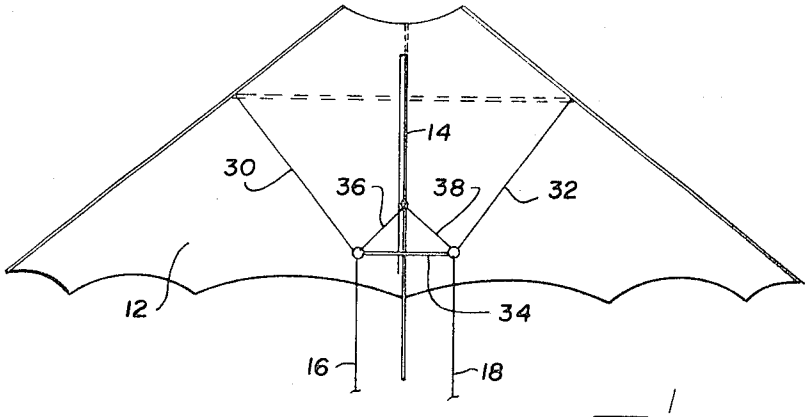


Fig. 2

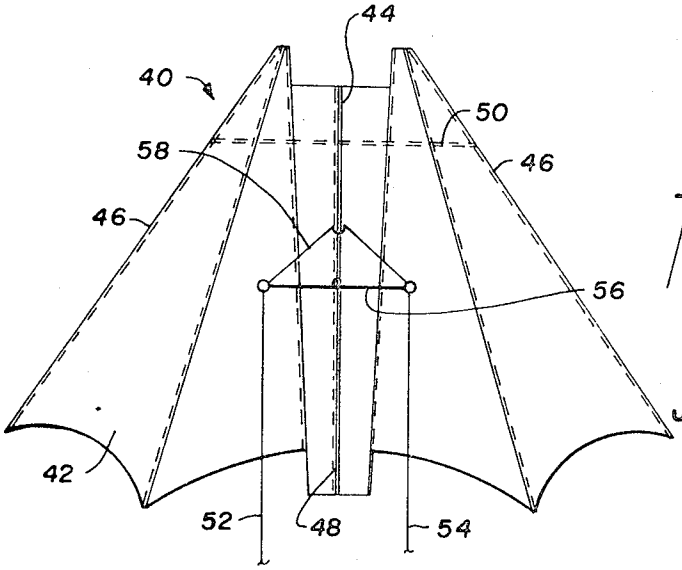


Fig. 3

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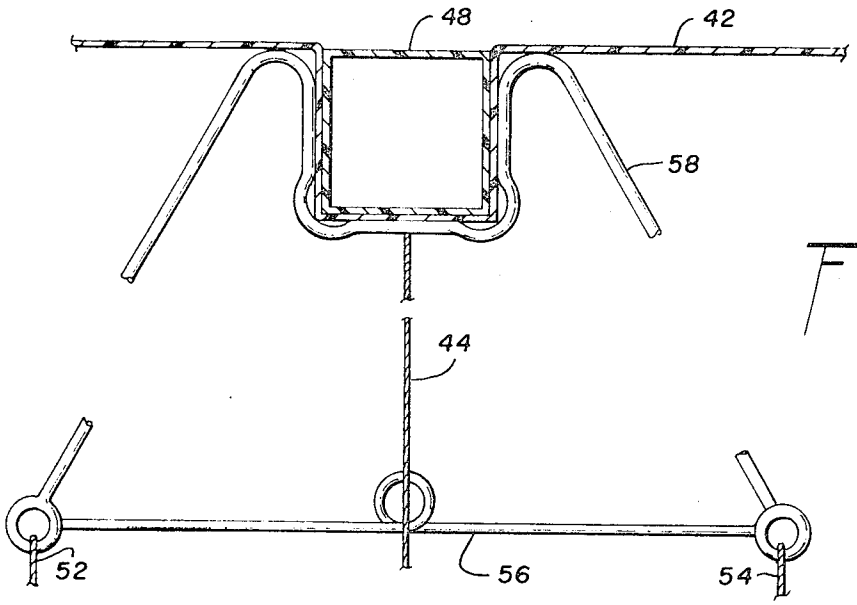
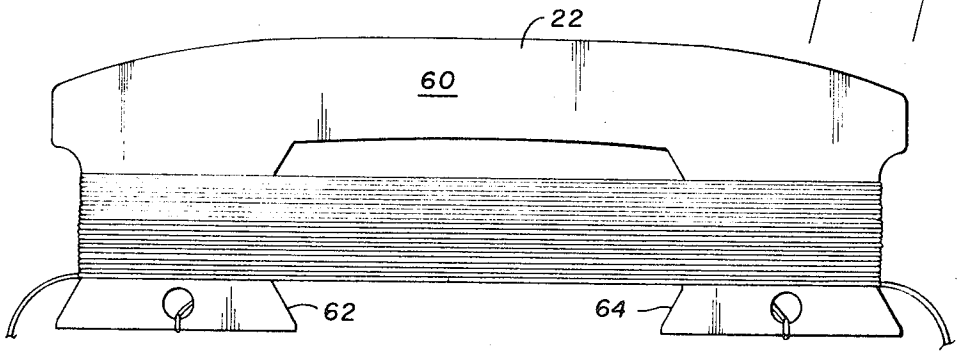


Fig. 4

Fig. 5



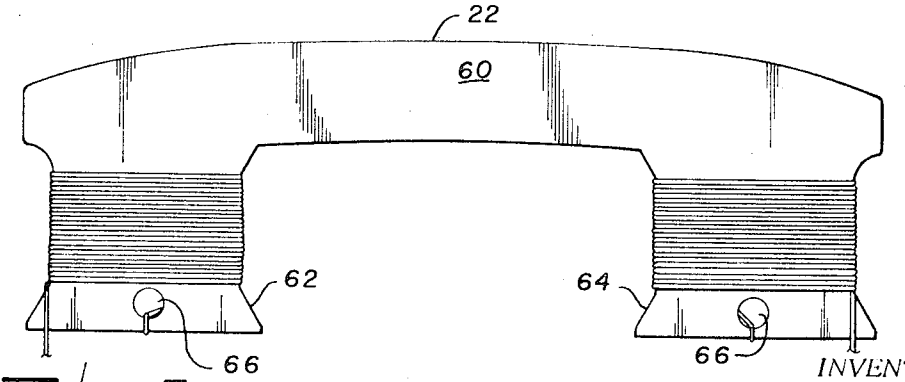


Fig. 6

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KITE STRUCTURE

The present invention relates to an improved keel-type kite which can be controlled from the ground for specific maneuvers.

An object of thepresent invention is to provide an improved keel-type kite which can be controlled in maneuvering from the ground by a pair of lines.

Another object is to provide an improved keel-type kite having a keel whose position is controlled from the ground to control the maneuvering of the kite.

A further object is to provide an improved keel-type kite which is connected by a pair of lines to a control member which may be used to control the maneuvering of the kite and on which the lines may be wound when the kite is not in use.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects and advantages of the present invention are hereinafter set forth and explained with reference to the embodiments illustrated in the drawings wherein:

FIG. 1 is a perspective view of the preferred form of kite of the present invention in flying position.

FIG. 2 is a bottom plan view of a keel-type kite having a modified control connection.

FIG. 3 is a bottom plan view of another form of keel-type kite illustrating its control connection.

FIG. 3 is a partial detail sectional view of the control connection of the kite shown in FIG. 3.

FIG. 5 is a view of a combination control member and line holder with the control lines wound together around the two legs of the holder.

FIG. 6 is a view of the combination control member and line holder with each of the control lines wound around the leg to which it is attached.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The kite **10** illustrated in FIG. **1** is a keep-type kite having a body **12**, a keel **14**, control lines **16** and **18** connected from the keel control rod **20** to the control member **22** and suitable means such as wing sticks **24**, keel stick **26** and cross brace **28** to maintain the body **12** in extended flying position. The keel **14** is generally triangular in shape and has the larger of its angles with the keel positioned forward. The control rod **20** is connected to the keel **14** at or near the normal point of attachment of the flying line when no control lines are used. The control rod **20** is connected to the keel at its center point and the lines **16** and **18** are connected to the ends of control rod **20**. The lines **30** and **32** connect from the respective ends of the control rod **20** to the body at positions near the juncture of the wing sticks **24** and the cross brace **28**.

In the form of control rod **20** illustrated in FIG. **1**, the rod **20** may be of any material so long as the rod is relatively stiff. In one kite actually flown the control rod **20** was formed from a relatively stiff wire. A wood stick of suitable strength and rigidity also may be used.

In the modified form of the invention illustrated in FIG. **2**, the kite is similar to the kite shown in FIG. **1** and therefore has the same numbers assigned to the same parts. The kite of FIG. **2** however has a modified connection from the control rod **34** to the keel and body of the kite. The lines **16** and **18** are connected to the ends of control rod **34** and the strings **30** and **32** extend from the ends of control rod **34** to the body **12** at

the approximate juncture of the wing sticks and the cross brace. Further the lines **36** and **38** extend from the ends of control rod **34** to the normal point of attachment for the flying line. With this type of harness connecting the control rod **34** to the body **12**, the movement of the control lines **16** and **18** control the maneuvering of the kite **10**.

In FIGS. **3** and **4**, another modified form of control system for another type of keel kite is ilustrated. The kite **40** includes the body **42**, the keel **44**, wing sticks **46**, keel stick **48** and the cross brace **50**. The control system for the kite **40** includes the two control lines **52** and **54** extending to the opposite ends of the control rod **56** which is secured at its center point to the usual point of string attachment on the keel **44**. Additionally, the brace **58** extends from the ends of control rod **56**, at least partially surrounds the keel stick **48** at the base of the keel **44**, and extends through keel **44** as shown. The structure of brace **58** is best seen in FIG. **4**. If desired, the brace **58** may be considered to be two braces extending from the opposite ends of the control rod **56** and engaging the body **42** at the base of the keel **44**.

The control member and line holder **22** is detailed in FIGS. **5** and **6**. The member **22** is generally C-shaped and includes a body **60** which is adapted to be held in the hand of the person flying the kite, and includes two legs **62** and **64** which extend from the body **60** and terminate in enlarged ends. Each of the legs defines an aperture **66** through which the end of the line to be attached thereto is secured. The lines may be wound around body of the legs **62** and **64** as shown in FIG. **5**, or each line may be wound around the leg to which it has been secured as shown in FIG. **6**. With the winding as shown in FIG. **6** the kite may be controlled during the unwinding of line from the member **22** because the enlarged ends of the legs allows the unwinding of the line to be controlled to thereby allow either of the lines to be pulled to control the kite's flight.

From the foregoing it can be seen that the improved kite and control system of the present invention allows the person flying the kite to easily control the maneuvering of the kite from the ground by manipulating the lines leading to the kite. Each form of the kite includes a control rod which is connected with the kite in such a manner that the relative position of the keel to the kite body may be changed to cause movement of the kite during flight in a desired direction. Also, the control member and line holder is provided which may be used for easy and simple control of the kite maneuvers and also on which the control lines may be wound.

What I claim is:

1. A kite, comprising

a body,

means for maintaining said body in extended flying position,

a keel secured to said body and extending generally fore and aft of said body and dividing said body into two wing portions,

a pair of control strings, and

means for connecting said pair of control strings to said keel and to said body so that manipulation of said strings moves at least a portion of said keel closer to one of said wing portions of said body to maneuver said kite.

2. A kite according to claim **1**, wherein said connecting means includes

control rod,

said control strings being attached to opposite ends of said control rod,

said control rod being connected to said keel.

3. A kite according to claim 2, including

strings connecting the ends of said control rod to said body.

4. A kite according to claim 3, wherein

said control rod is secured to said keel at the central point of said rod.

5. A kite according to claim 3, including

strings connecting the ends of said control rod to said keel.

6. A kite according to claim 2, wherein

said control rod is secured to said keel at the central point of said rod, and

means extending between each of the ends of said control rod and said body adjacent the base of said keel for supporting said control rod with respect to said body so that movement of said control rod moves said keel relative to said body.

7. A kite according to claim 6, wherein said supporting means includes

strings connecting from said control rod ends to the base of said keel on said body.

8. A kite according to claim 1, including

a C-shaped string holder having a body and legs extending therefrom at each end of said body, and

one of said strings connected to each leg of said holder,

said legs being enlarged at their ends away from said holder body so that the strings may be wound on said legs.

9. A kite according to claim 8, wherein

said string holder may be manipulated when one of said control strings extends from each end thereof to control movement of the kite.

10. A kite, comprising

a body,

means for maintaining said body in extended flying position,

a keel secured to said body and extending generally fore and aft throughout a substantial portion of the length of said body,

a pair of control strings, and

means for connecting said pair of control strings to said keel and said body so that manipulation of said strings moves at least a portion of said keel with respect to said body to change the distance between at least one point on the surface of said keel and the nearest point on the surface of said body to maneuver said kite.

11. A kite, comprising

a body,

means for maintaining said body in extended flying position,

a keel secured to said body and extending generally fore and after said body,

a pair of control strings,

means for connecting said pair of control strings to said keel so that manipulation of said strings moves at least a portion of said keel with respect to said body to maneuver said kite, said connecting means including

a control rod being secured to said keel at a central point of said rod, said control strings being attached to opposite ends of said control rod, said control rod being connected to said keel, and

means extending between each of the ends of said control rod and said body adjacent the base of said keel for supporting said control rod with respect to said body so that movement of said control rod moves said keel relative to said body, said supporting means including

a brace extending from one end of said control rod through said keel at its base and to the other end of said control rod,

said brace being secured to said keel at its base.

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