Oct. 20, 1970 J. M. CHRISTOFFEL ET AL 3,534,932

KITE

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Fig. 1

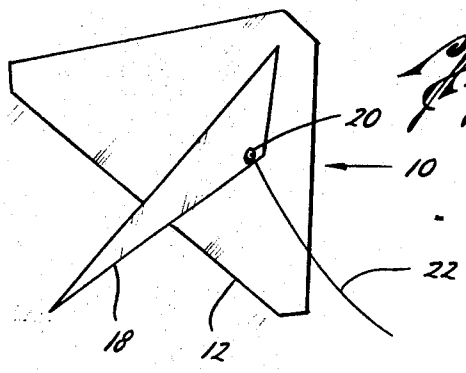


Fig. 2

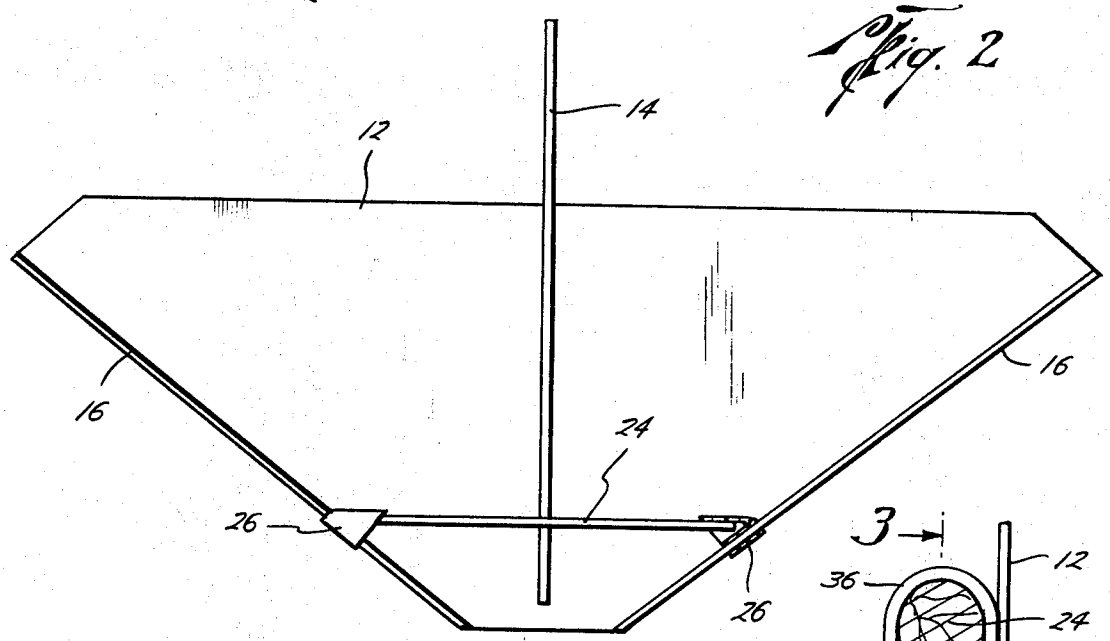


Fig. 3

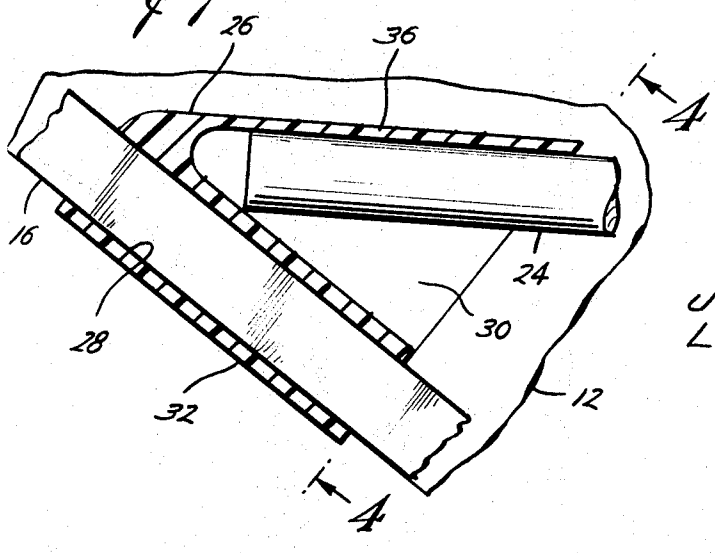
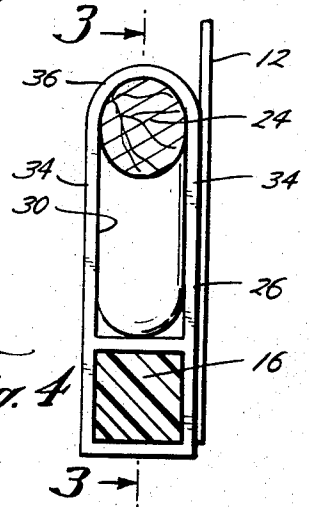


Fig. 4



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KITE

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U.S. Cl. 244—153 8 Claims

ABSTRACT OF THE DISCLOSURE

A kite having at least two diverging sticks, a cross stick, a body of sheet material and a pocket defining bracket secured on two of the diverging sticks and adapted to receive the cross stick.

BACKGROUND OF THE INVENTION

A kite such as disclosed in U.S. Pat. No. 2,785,870 issued to W. Green on Mar. 19, 1957, includes diverging wing sticks, a body of sheet material, a cross stick and a U-shaped bracket affixed to each wing stick to receive the ends of the cross stick. Difficulty has been encountered with such U-shaped brackets in that they have pulled loose from the wing sticks and also the cross sticks have pushed out the rear end of the pocket formed by such brackets. Most of the kites which have included such U-shaped brackets have used a piece of cardboard for such bracket and have stapled the cardboard bracket to opposite sides of the wing stick. Difficulties have been encountered when such cardboard brackets were wet and also the brackets have been torn and unstapled from the wing stick while inserting the cross stick.

SUMMARY

The present invention relates to an improved kite structure.

One object of the present invention is to provide an improved kite structure which is not adversely affected by wetting.

Another object is to provide an improved kite structure having cross stick receiving brackets which remain secured to their wing sticks and provide improved end support for the cross stick.

A further object is to provide improved brackets for a kite to receive the cross stick in which the cross stick is readily mounted without damage to the brackets or their attachment to the kite structure.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects of the present invention are hereinafter described and explained with reference to the drawings wherein:

FIG. 1 is a perspective view of a kite flying in the air.

FIG. 2 is a plan view of an improved kite constructed in accordance with the present invention.

FIG. 3 is a detail sectional view of the improved bracket of the present invention taken along line 3—3 in FIG. 4 showing its wing stick and its cross stick in dashed lines.

FIG. 4 is a view of the bracket taken along line 4—4 in FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The kite **10** shown in FIGS. 1 and 2 includes a body **12** of sheet material secured to the keel stick **14** and the diverging wing sticks **16**. The keel **18** is secured to the body **12** and to the keel stick **14** and is provided with suitable means, such as, the reinforcing eyelet **20**, for securing the string **22** to the kite **10**.

The cross stick **24**, which when positioned with its ends in the brackets **26**, functions to spread and hold the wing sticks **16** outward to maintain the body **12** in flying position. As best seen, in FIGS. 3 and 4, the brackets **26** are molded from a suitable material, such as, a low density polyethylene. The brackets as shown are a formed structure defining the wing stick hole **28** which extends completely through the bracket **26** and the cross stick pocket **30** which is closed at its inner end to support the end of the cross stick **24** positioned therein. The bracket structure **26** includes the walls **32** which define the wing stick hole **28** and the walls **34** extending generally parallel to each other and being joined at their outer edges to form the wall **36** which diverges outwardly from the walls **32** to form the cross stick pocket **30**.

Brackets **26** are installed on the wing sticks **16** and are secured in proper position by suitable securing means, such as, a cement, glue or pinning. If wing stick **16** is a plastic material that can be heat bonded, the bracket **26** may be heat bonded to the wing stick **16**. With the bracket **26** secured to the wing sticks **16**, the body **12** is secured to the wing sticks **16** and the keel stick **14**. The keel **18** is secured to the body **12** and to the keel stick **14**. To spread the body **12** and wing sticks **16** to the flying position of the kite **10**, the ends of cross stick **24** are inserted into the pockets **30** of the brackets **26**. With the string **22** secured in the eyelet **20**, the kite is then ready to fly.

The improved brackets **26** are easily secured to the wing sticks **16** which extend through their holes **28**. In this structure, the brackets **26** remain in their secured position even when subjected to considerable stress and water. Further, these brackets **26** define the closed end pockets **30** which receive the ends of the cross stick **24** to hold the kite **10** in flying position. The cross stick **24** will not push through the closed end or bottom of the pockets **30**. Thus, the improved kite of the present invention is relatively impervious to wetting and is considerably stronger than prior kites without being appreciably more expensive.

The foregoing disclosure and description of the invention are illustrative and explanatory thereof, and various changes in the size, shape and materials, as well as in the details of the illustrated construction, may be made within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. A kite comprising,
at least two sticks,
a body of flat material secured to said sticks,
a pair of molded brackets,
each of said brackets having a structure defining a hole extending therethrough and a pocket,
said pocket having a generally triangular shape in a plane extending through the axis of the hole therethrough so that said pocket is open at one end and closed at the other end to receive the end of a stick therein,
each of said brackets having one of said sticks extending through its hole and reinforcing said stick around its circumference,
means for securing each bracket to the stick extending through its hole,
said brackets being mounted on said sticks with the open ends of their pockets facing each other when said body is spread, and
a cross stick having its ends in the pockets of said brackets to maintain said sticks and said body in spread position.

2. A kite according to claim **1** wherein said bracket securing means includes
a heat bond between each of said brackets and its re-

spective stick and wherein said body is heat bonded to said sticks.

3. A kite according to claim 1, wherein said bracket structure is a formed plastic.

4. A kite according to claim 1, wherein said bracket is a molded low density polyethylene.

5. The subcombination with a kite having a body, at least two wing sticks and a cross stick, of a bracket comprising

a molded structure defining a hole extending therethrough and a pocket,

said hole in said structure having a cross sectional shape similar to the cross sectional shape of said wing sticks whereby each of said molded structures may receive a wing stick in such hole and provide support for such wing stick,

said pocket in said structure being open at one end and closed at the other whereby the pocket is triangular in shape in a plane through the axis of said hole and the center of said pocket whereby said pocket is suitable for receipt of the end of said cross stick therein to maintain the kite in spread position.

6. The subcombination according to claim 5, wherein said structure is a molded plastic.

7. The subcombination according to claim 5, wherein said structure is a molded low density polyethylene.

8. The subcombination according to claim 5, wherein said structure includes

walls surrounding said hole,

a wall diverging outwardly from one of said walls defining said hole, and

two side walls extending from said walls defining said hole to said diverging wall to form said pocket.

References Cited

UNITED STATES PATENTS

919,436	4/1909	Jackson	244—153
2,785,870	3/1957	Green	244—153
3,204,368	9/1965	Effinger et al.	244—154 XR
3,248,075	4/1966	Cunningham	244—153
3,347,500	10/1967	Hartig	244—153 XR

FOREIGN PATENTS

1,395,715	3/1965	France.

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