Oct. 29, 1957 F. L. ROE 2,811,327

KITE

Filed Dec. 1, 1954 3 Sheets-Sheet 1

Fig. 1.

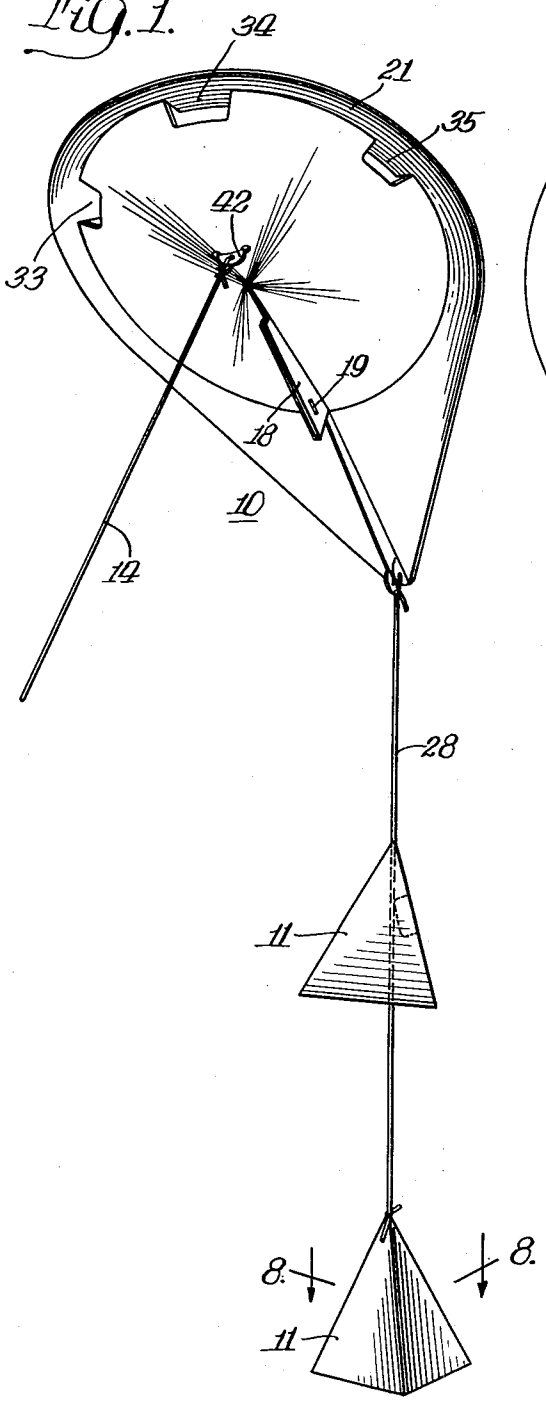


Fig. 2.

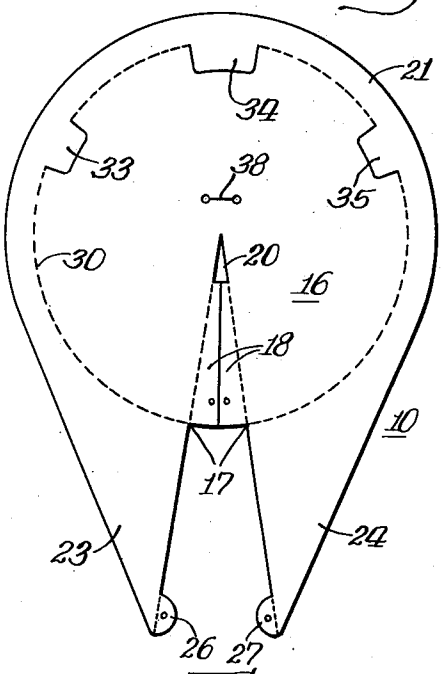


Fig. 3.

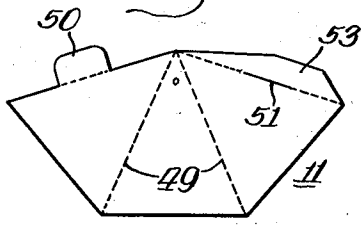
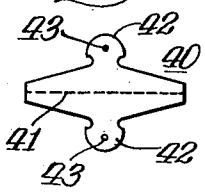


Fig. 4.



INVENTOR.
Frank L. Roe,
BY
Mueller & Aichele
Attys.

Oct. 29, 1957 F. L. ROE 2,811,327

KITE

Filed Dec. 1, 1954 3 Sheets-Sheet 2

Fig. 5.

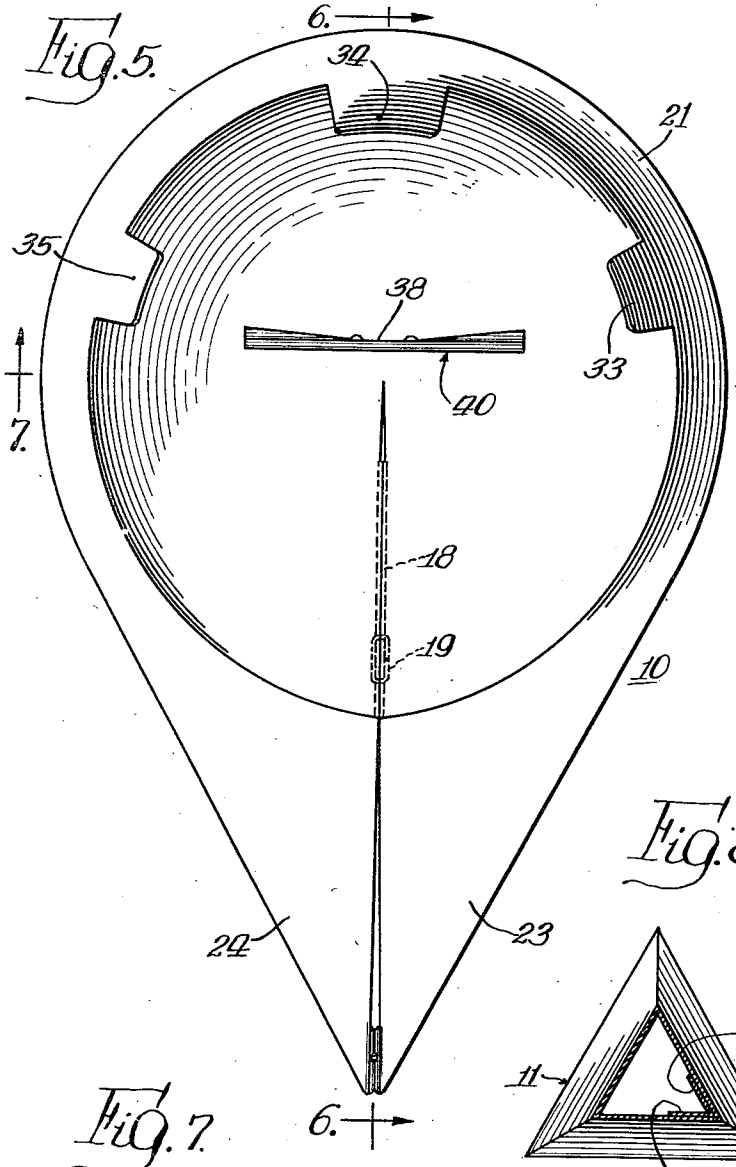


Fig. 6.

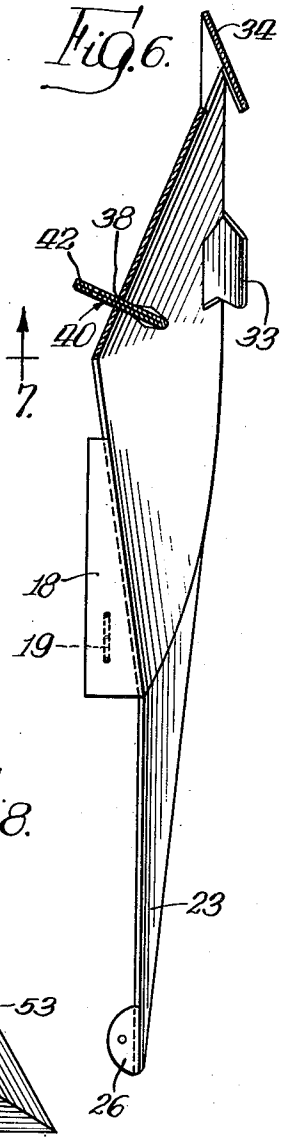
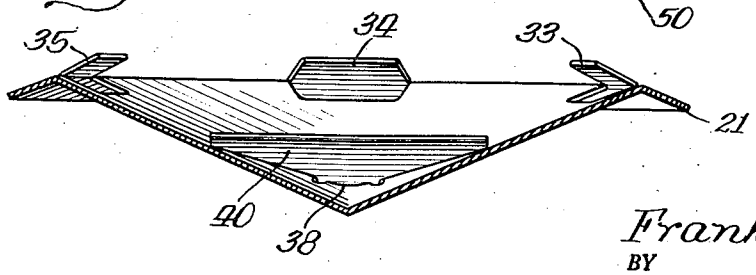


Fig. 8.

Fig. 7.



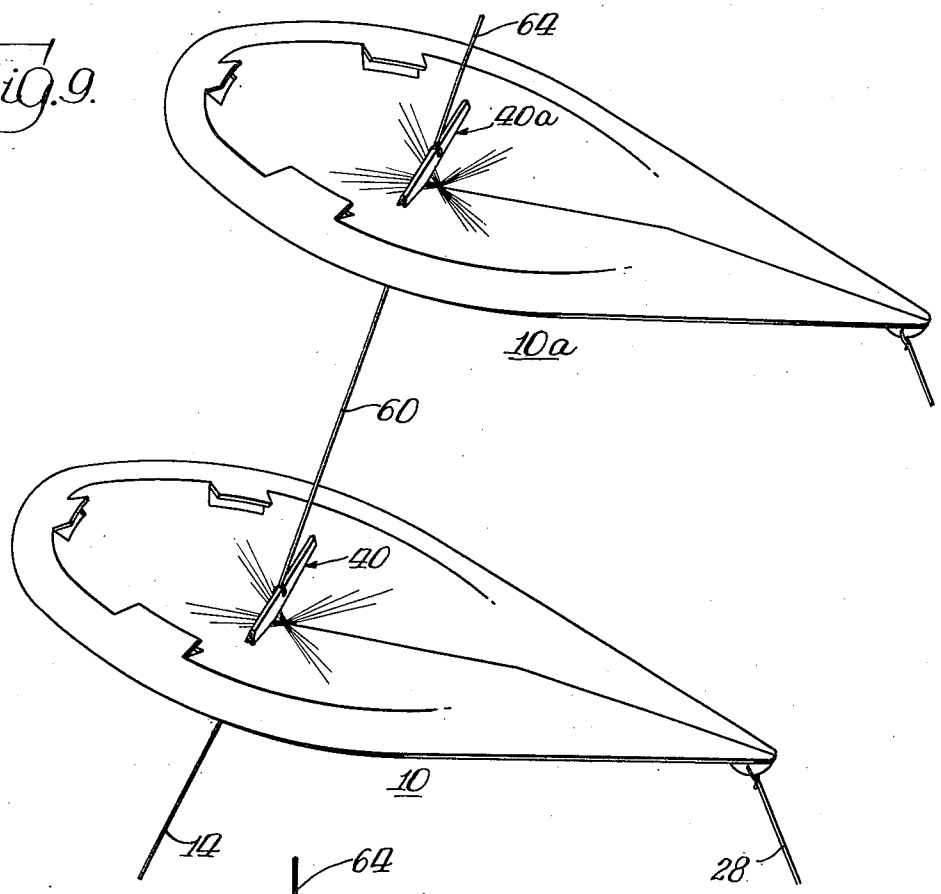
INVENTOR.
Frank L. Roe,
BY
Mueller & Aichele Attys.

Oct. 29, 1957 F. L. ROE 2,811,327

KITE

Filed Dec. 1, 1954 3 Sheets-Sheet 3

Fig. 9.



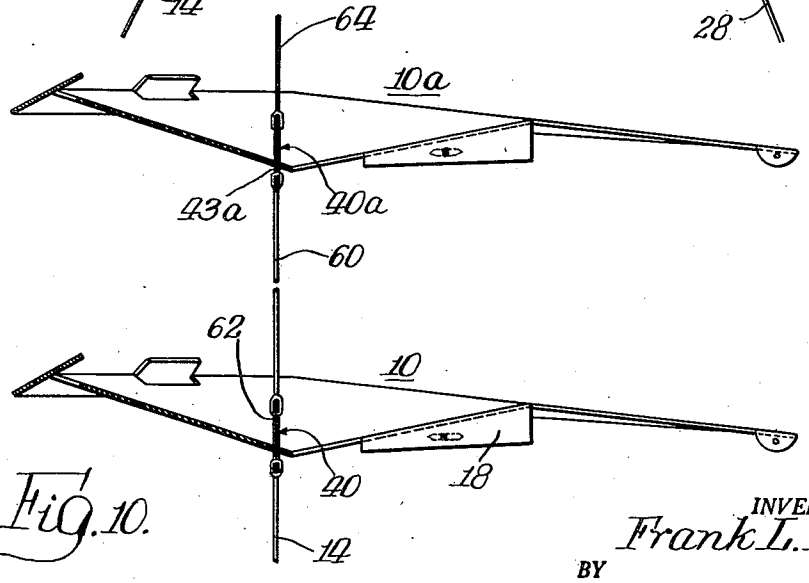


Fig. 10.

INVENTOR.
Frank L. Roe,
BY
Mueller & Aichele
Atty's

United States Patent Office

2,811,327

Patented Oct. 29, 1957

2,811,327

KITE

Frank L. Roe, Evanston, Ill.

Application December 1, 1954, Serial No. 472,358

10 Claims. (Cl. 244—153)

This invention relates to kites and more particularly to an improved form of kite which exhibits very satisfactory flying characteristics.

In my Patent No. 2,588,293 of March 4, 1952, there is disclosed a kite which may be formed of heavy paper or the like and simply assembled from a single flat piece of such material. Such a kite provides a very inexpensive flying device which may be shipped conveniently and easily prepared for flight by a user having but little skill. The present invention constitutes an improvement over the kite disclosed in that patent.

An object of the present invention is to provide an improved lightweight kite formed of paper board, thin aluminum, or the like, and which exhibits increased stability and flyability.

It is also an object of my invention to provide a construction and design equally effective in kites varying in size from very small to large.

Another object is to provide a kite to which the flying string may be simply and accurately attached to promote stable flying.

Still another object of the invention is to provide an improved kite composed of lightweight material which may be successfully flown in a substantial wind.

A feature of the invention is the provision of an improved kite, having air escape apertures and tabs extending partially thereacross to promote increased flight stability and balance.

Another feature is the provision of an improved kite with simplified means for attachment of a flying string including a stiffening strut disposed on one side of the body with an integral tab portion extending through a slit in the body to provide a single tie point for flying string.

Still another feature of the invention is the provision of means to improve flyability of the kite including a two-piece tail section integral with the body of the kite but yieldable in a vertical direction wtih respect to the body.

Further objects, features and advantages will be apparent upon consideration of the following specification and drawings, in which:

Fig. 1 is a perspective view of the completely assembled kite as it appears in flight;

Figs. 2–4 are plan views of the components of the kite illustrating the shapes and the folding lines thereof;

Fig. 5 is a back view of the kite;

Fig. 6 is a sectional view along the lines 6—6 of Fig. 5;

Fig. 7 is a sectional view along the lines 7—7 of Fig. 5;

Fig. 8 is a sectional view of the tail member along the lines 8—8 of Fig. 1; and

Figs. 9 and 10 illustrate flight of a plurality of kites from a single flying string.

Fig. 1 illustrates the flying position of the kite 10 with its associated tail anchors or members 11 and the flying string 14. As mentioned, the kite may be made of some light weight material such as heavy paper, cardboard, or even light weight metal or plastic. Additional or fewer

tail members may be used in accordance with the strength of the prevailing winds.

As shown in Figs. 1 and 2 the kite consists of the circular body 16 with a sector 17 thereof doubled upon itself and secured in the form of a tuck 18 (Fig. 1) to provide a body of a saucer-shape or the shape of a very wide base cone. As is apparent, the tuck 18 provides a keel for the kite. A suitable metallic clip 19 may be used to secure the tuck 18. In order to provide a neater construction of the saucer-shaped body, a triangular portion 20 at the apex of the sector may be removed entirely. Surrounding the major portion of the body 16 is an integral reversely bent edge or rim 21 which enlarges into tapered tail sections 23 and 24 which terminate on opposite lines defining the limits of the sector 17. The tail sections each have flaps or tabs 26, 27 at the extreme ends thereof so that a string or thread 28 may secure the tail portions 11 thereto. It should be pointed out that the tail sections 23 and 24 are rather flexible since the tuck taken in the body 16 does not extend beyond the circular limits thereof and the sections have a tapered shape. This promotes stability and balance during flight.

At the scored juncture line 30 between the body 16 and the rim 21, the rim is reversely folded in relation to the dish shape of the body 16. Therefore, as the kite is flown as shown in Fig. 1 with the convex side thereof facing the wind, the reversely folded rim 21 will act as a wind catcher for the kite. Moreover, in order to further stabilize the kite, tabs 33, 34 and 35 are cut from the body 16 and left integral with the rim 21. Accordingly, as the rim 21 is reversely folded, the flaps or tabs 33, 34 and 35, not having been scored at line 30, turn with the reverse fold of the rim and remain in a plane therewith. This is clearly illustrated in Figs. 6 and 7. The apertures in the edge of the body 16, with the flaps partially thereacross, constitute escape apertures for the wind and greatly improve the flyability of the kite.

A slit 38 is cut in the body 16 at a point slightly beyond the center of the circular body and opposite the triangular portion 20 so that a stiffening strut 40 may be supported therein (Figs. 5–7). Small apertures at the ends of slit 38 prevent tearing of body 16. The strut 40 is shown in Fig. 4 and preferably consists of a piece of the same material of which the kite is formed doubled upon itself at line 41 to form roughly a triangle with a tab 42 at the apex thereof. The tapering sides of the strut 40 are formed to correspond substantially with the contour of the interior of the saucer-shaped body 16 so that it assists in maintaining such shape. The tab 42 is inserted through the slit 38 to project from the convex side of the body as a tie point to which the flying string 14 may be attached by means of aperture 43. The strut 40 is an important feature of the present invention and aids greatly in maintaining the kite body in its intended shape as well as providing a very simple means for attachment of the flying string. Thus it may be seen that the string is attached at a single point upon the kite and that there is virtually no opportunity for unbalanced pull of the string such as might occur if the string were attached to the kite at more than one point. Strut 40 in effect provides automatic centering for the string 14. It is doubled upon itself to provide increased stiffness and to better engage the kite body.

Tail member 11 is shown in its unfolded condition in Fig. 3 and it may be seen to consist of a piece of light weight material folded at lines 49 in the form of a pyramid. Tab 50 may be inserted in a slot 51 in an extension 53 of one side of the pyramid in order to lock the article in its intended shape (Fig. 8). An aperture near the apex of the tail member may be provided for attachment of the tailstring 28. This string may be tied

and brought down through the pyramid and out the bottom to permit attachment of further tail members as shown in Fig. 1. It may be preferable to form the tail pieces of material of somewhat lighter weight than that of the kite itself in order to prevent undue drag thereupon, particularly when the wind is light. However, stabilization of the kite may also be effected by using the proper number of tail anchors or members as previously mentioned. It is also possible to form the tail members in conical shape by omitting score lines **49**.

The perspective view of Fig. 9 and the sectional view of Fig. 10 show the method of grouping a plurality of kites for flight from a single flying string in what may be termed tandem style. The first kite **10** is flown as previously described by means of string **14** and a second kite **10***a* is secured to kite **10** by means of a short joining string **60**. At an aperture **43***a* in the strut **40***a* one end of string **60** is attached while the other end thereof is secured to an aperture **62** in the strut **40** (Fig. 10). The two kites may then be successfully flown as shown in Fig. 9. One or more additional kites may be similarly added by attachment to the joining string **64** which is fastened to strut **40***a*.

It may be seen that the kite of the present invention can be very inexpensively manufactured and conveniently shipped due to the type of material and the simply formed shapes of the parts as well as the unassembled flat condition thereof. In addition, assembly of the completed device is relatively easy and may be effected with little likelihood of failure. The assembly involves very simple folding and fastening operations which practically insure a successful flying device.

It is also noteworthy that the flying string attachment point, the tuck or keel, the tail sections and the attached tail members are all auomatically in alignment to promote stability of flight. Furthermore, in actual tests the kite as described has proved highly successful due to the improved balance as provided by the air escape apertures and associated tabs, as described above. Of course, the strut which provides the point for string attachment also strengthens the entire assembled kite so that it may better withstand stronger winds. It may also be pointed out that kites have been constructed in accordance with the invention in widely varying sizes from one as small as six inches across to one which is several feet across. The invention provides, therefore a highly satisfactory kite structure.

I claim:

1. A kite adapted to be formed from a precut sheet of flexible material into a configuration for flying, said kite comprising a saucer-shaped body with an edge portion folded in reverse relation to the saucer shape of said body, a keel on the convex side of said saucer-shaped body, said keel being comprised of a doubled portion of said body secured in fixed relation, said body having a slit adjacent said keel, a pair of flexible tapered tail flaps integral with and extending from said bent edge portion, one on either side of said keel with the ends thereof being secured together for stabilizing said kite, said body including at least one aperture adjacent said bent edge portion with a flap partially thereacross substantially in the plane of said edge portion, and a stiffening strut disposed on the concave side of said body with a tab extending through said slit therein to form a single tie point for attachment of flying string.

2. In a kite having a body of conical shape with a slit therein, a reversely bent rim portion partially surrounding the base thereof and a keel integral with the body and extending substantially along a line of the slant height of the conical shape thereof, the combination including the body having an aperture adjacent the rim portion, a tab member integral with and substantially in the plane of the bent rim portion, said tab member being bent away from the body and extending partially across said aperture, a pair of tail portions integral with and extending radially from the bent rim portion and outwardly of the keel; and a tie strut disposed within the body of conical shape and having a tab portion extending through the slit therein to form a tie point for attachment of flying string.

3. A kite adapted to be formed from a sheet of flexible material into a configuration for flying, said kite comprising a saucer-shaped body with a rim portion in reverse relation to the saucer shape of said body, a keel on the outside of said saucer-shaped body, said keel being comprised of a doubled portion of said body secured in a tuck, a pair of tapered tail portions integral with and extending from said rim portion, one on either side of said keel with the ends thereof being secured together, said body including a series of apertures adjacent said rim portion with a flap partially across each aperture substantially in the plane of said rim portion, and a stiffening strut disposed inside of said saucer-shaped body with a tab extending through said body to form a tie point for attaching flying string.

4. A kite having a body of conical shape with a slit therein, a reverse rim portion partially surrounding the base thereof and a keel member integral with the body and extending substantially along a line of the slant height thereof, said body having a series of apertures adjacent the rim portion, a series of tab members integral with and substantially in the plane of the rim portion, said tab members being bent away from the body and one extending partially across each of said apertures, a pair of tail portions integral with and extending radially from the rim portion and outwardly of the keel, said tail portions being adapted to support tail means attachable thereto; and a tie strut disposed within the body of conical shape and having a tab portion extending through the body to form a tie point for attachment of flying string.

5. In a kite formed of lightweight cardboard and the like, with a saucer-shaped body having a slit therein, a reversely bent rim portion, and a keel on the convex side of the body, said kite including, a pair of flexible tail sections one extending radially from each side of the keel, the body having a series of apertures adjacent the rim portion and substantially oppositely disposed from said tail sections, flaps integral with and substantially in the plane of the rim portion and extending partially across said apertures, and a strut member disposed on the inside of the saucer-shaped body with an edge thereof extending along a portion of the body and a tab portion of said member extending through the slit in the body to form a string tie point.

6. A kite formed of lightweight flexible material and including a saucer shaped body and an integral tail section extending therefrom, said body having an edge portion turned into a position substantially in reverse relation to said saucer-shaped body, and a plurality of apertures adjacent said edge portion each with a tab bent out of the plane of said apertures to lie substantially in the plane of said edge portion.

7. A kite formed of lightweight flexible material and including a saucer-shaped body and an edge portion turned into a position substantially in reverse relation to said saucer-shaped body, said body having a keel portion along the convex side thereof of a length substantially coextensive with one half of said saucer-shaped body, and an extension yieldable over its length extending outwardly beyond said keel portion to form a tail.

8. A kite formed of lightweight flexible material and including a saucer-shaped body with a slit therein and an edge portion turned into a position reverse of said saucer-shaped body, said body further having an outwardly extending tail section, and a strut disposed on the concave side thereof with a portion extending through said slit as an attaching point for flying string.

9. A one piece blank for making a kite, said blank comprising a flat member of flexible material with a

rounded periphery and a tapered section extending therefrom about an axis of symmetry of said blank; a plurality of tabs partially cut from said blank adjacent the periphery thereof, a score line extending between said tabs at a spaced distance from said rounded periphery, a cutout in said blank adapted to receive a strut member, a slit in said blank along said axis of symmetry and score lines on each side of said slit to permit formation of a tuck between said score lines.

10. The kite of claim 3 wherein said stiffening strut includes an aperture on the portion disposed inside saucer-shaped body for attachment thereto of another kite.

References Cited in the file of this patent

UNITED STATES PATENTS

391,507	Burgess	Oct. 23, 1888
1,375,970	Pantcheff	Apr. 26, 1921
2,562,789	Holland	July 31, 1951
2,588,293	Roe	Mar. 4, 1952
2,631,798	Guercio	Mar. 17, 1953

FOREIGN PATENTS

489,139	Great Britain	July 20, 1928