Jan. 9, 1951 G. D. WANNER 2,537,560

KITE

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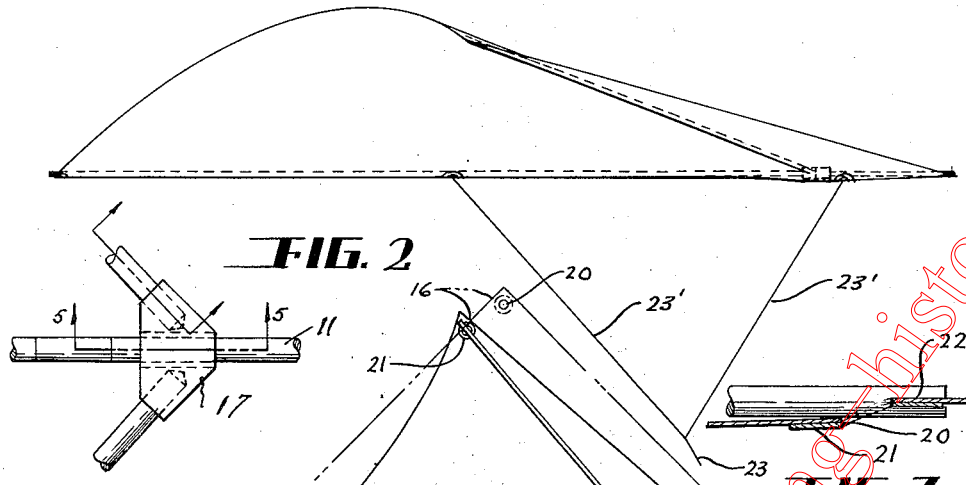

FIG. 2

FIG. 4

FIG. 7

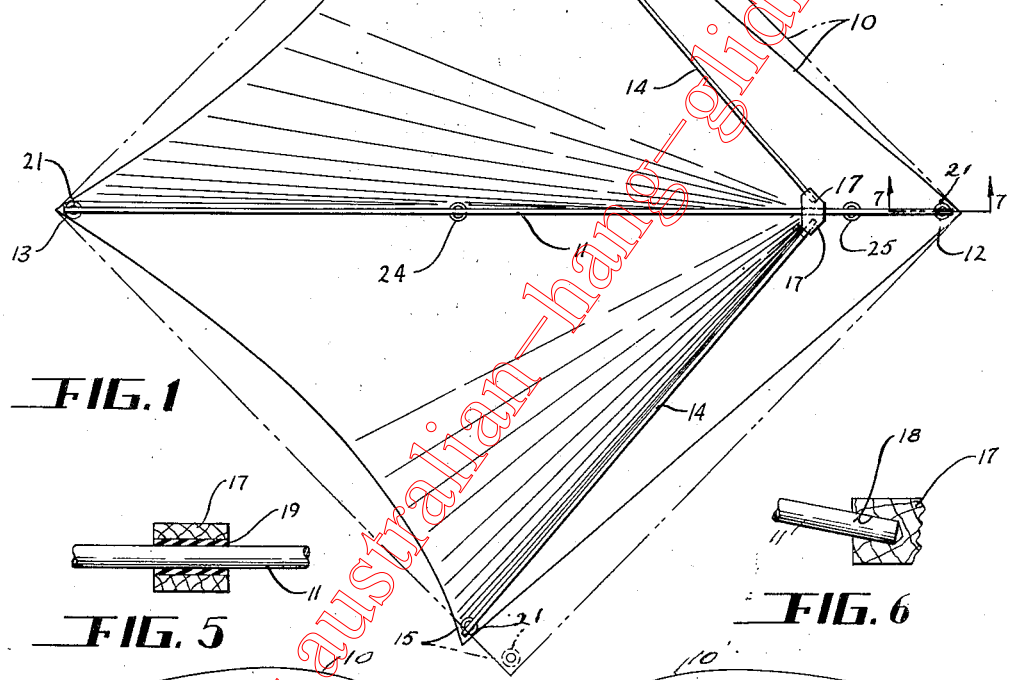

FIG. 1

FIG. 5

FIG. 6

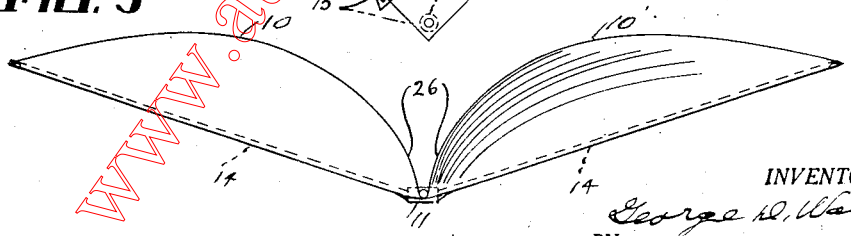

FIG. 3

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KITE

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This invention relates to a kite.

One object of the invention is to provide a kite of simple and inexpensive construction having superior flying qualities.

A further object of the invention is to provide such a kite having a substantially flat flexible cover so supported that in flight a portion thereof assumes the form and function of a fixed rudder.

A further object of the invention is to provide such a kite having a substantially flat flexible cover the lateral portions of which form a dihedral angle when the kite is in flight.

Other objects of the invention may appear as the kite is described in detail.

In the accompanying drawing Fig. 1 is a top plan view of a kite embodying the invention; Fig. 2 is a side elevation of the kite in flight; Fig. 3 is a rear elevation of the kite in flight; Fig. 4 is a detail view of the connection between the fore and aft rod and the lateral rods; Fig. 5 is a section taken on the line 5—5 of Fig. 4; Fig. 6 is a fragmentary section of the rod supporting fitting showing one of the sockets; and Fig. 7 is a section taken on the line 7—7 of Fig. 1.

In these drawings I have illustrated a preferred embodiment of the invention but it is to be understood that the kite as a whole, as well as the several parts thereof, may take various forms and arrangements without departing from the spirit of the invention.

The kite comprises a cover of flexible material which is arranged below a supporting frame comprising a fore and aft member connected with the foremost and rearmost edge portions of the cover to limit the upward movement of the longitudinally central portion of the cover, and lateral frame members connected respectively with the lateral edge portions of the cover and so arranged with relation to the fore and aft frame member as to maintain the forward edge portions of the cover taut and to maintain the rear edge portions of the cover slack so as to permit the lateral portions of the cover to move upwardly between the fore and aft member and the lateral frame members when the kite is in flight.

Preferably the cover comprises a square sheet of thin flexible material, such as paper, as shown in dotted lines at 10 in Fig. 1. The fore and aft frame member 11 comprises a rod of light material, such as a wooden stick, which is connected at its respective ends with diagonally opposite corners of the sheet, that is the corners 12 and 13. The fore and aft rod is of a length approximating the diagonal dimension of the cover and thus holds the front and rear corners in their

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fully extended positions at all times. The lateral frame members also comprise rods 14 which are connected at their inner ends with the fore and aft rod 11, diverge rearwardly therefrom and are connected at their outer ends with the respective lateral corners 15 and 16 of the cover. The arrangement of the frame members is such that when the kite is fully assembled the outer ends of the rods 14 are spaced from the forward corner 12 of the cover a distance approximately equal to the length of the forward edges of the cover, that is the edges between the corner 12 and the corners 15 and 16 and therefore maintains those edges taut. Such an arrangement results in the outer ends of the lateral rods 14 being spaced from the rear corner 13 of the cover a distance somewhat less than the lengths of the rear edges of the cover, that is the edges between the rear corner 13 and the lateral corners 15 and 16, thus providing in the rear edges of the cover a substantial slack. When the kite is in flight the pressure of the air on the lower surface of the cover moves the lateral portions thereof upwardly between the fore and aft rod 11 and the respective lateral rods 14 and those parts of the lateral portions of the cover adjacent the fore and aft rod assume the form of a dihedral angle thus imparting to the cover as a whole a dihedral form. Due to the narrow width of the cover adjacent the rear corner thereof the rear lateral portions of the cover assume almost vertical positions and constitute in effect a fixed vertical rudder which resists the movement of the kite laterally or about a vertical axis. To increase the dihedral effect it is preferable that the diverging lateral rods 14 shall be inclined upwardly and rearwardly from their point of connection with the fore and aft rod so as to support the lateral corners of the cover in a plane substantially above the fore and aft rod.

The lateral rods 14 may be attached to the fore and aft rod in any suitable manner but it is preferable that the point of connection shall be adjustable lengthwise of the fore and aft rod to facilitate the attachment of the rods to the cover and to enable the forward edges of the cover to be drawn taut. For this purpose the inner ends of the rods 14 are attached to a fitting 17 adjustably mounted on the fore and aft rod adjacent the forward end of that rod. In the form shown this fitting is in the nature of a block, preferably of wood, having on each side of the fore and aft rod an outwardly and upwardly inclined socket 18 to receive and support the inner end of the adjacent rod 14. The fitting

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is provided with a longitudinal bore through which the fore and aft rod extends and which is provided with a lining 19 of friction material, such as soft rubber, which yieldably resists the movement of the fitting on the rod and retains the same in adjusting positions thereon.

The outer ends of the frame members or rods may be connected with the cover in various ways and in the present instance the cover is provided in each corner portion thereof with an opening 20 which is reinforced by a thin grommet 21. Both ends of the fore and aft rod and the outer ends of the lateral rods 14 are bifurcated, as by forming therein a slot or kerf 22 the lower portion of which extends through the opening 20 and beneath the outer portion of the grommet, thus permitting the latter to enter the slot and support the adjacent portion cover on the rod.

In assembling the kite the cover 10 is laid flat on a suitable support, as shown in dotted lines in Fig. 1, the ends of the fore and aft rod 11 are connected with the front and rear corners respectively of the cover, the lateral rods 14 are moved forwardly on the fore and aft rod and connected with the respective lateral corners of the cover, and the lateral rods then moved rearwardly, by sliding the fitting 17 along the fore and aft rod, until the forward lateral edges of the cover are taut, the frictional connection between the fitting and the fore and aft rod serving to retain the fitting and therefore the rods in their adjusted positions. The kite string, or line, 23 is preferably provided at its upper end with two branches 23' which extend respectively through a central opening 24 and a front opening 25 in the cover and are tied or otherwise attached to the fore and aft rod. The kite is launched in the usual manner and when supported by the air the upward pressure of the air on the cover moves the lateral portions thereof upwardly between the fore and aft frame members and the respective lateral frame members to impart a dihedral form to the cover, as shown in Fig. 3, and the rear corner portions of the cover form a fixed rudder, as shown at 26.

While I have shown and described one embodiment of my invention I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A kite comprising a substantially square cover of flexible material, a fore and aft rod connected at its ends with diagonally opposite corners of said cover, and a pair of rigid rods connected with said fore and aft rod adjacent the forward end of the latter, diverging rearwardly therefrom and connected at their outer ends with the lateral corners of said cover, and the ends of said diverging rods being so spaced from the ends of said fore and aft rods as to maintain the the forward edges of said cover taut and to provide slack in the rear portions of said cover.

2. A kite comprising a substantially square cover of flexible material, a fore and aft rod connected at its ends with diagonally opposite corners of said cover, a fitting mounted on said rod adjacent the forward end of the latter for adjustment lengthwise thereof, and a pair of rods connected with said fitting, diverging rearwardly therefrom on opposite sides of said fore and aft rod and connected at their outer ends with the lateral corners of said cover.

3. A kite comprising a substantially square cover of flexible material, a fore and aft rod connected at its ends with diagonally opposite corners of said cover, a fitting mounted on said rod adjacent the forward end of the latter, and a pair of rods connected with said fitting, diverging rearwardly therefrom on opposite sides of said fore and aft rod and connected at their outer ends with the lateral corners of said cover, said fitting being adjustable lengthwise of said fore and aft rod and having means to yieldably retain the same in adjusted positions.

4. A kite comprising a substantially square cover of flexible material, a fore and aft rod above said cover and connected at its ends with diagonally opposite corners thereof and a pair of rearwardly diverging rods connected at their inner ends with the forward portion of said fore and aft rod and connected at their outer ends with the lateral corners of said cover, said outer ends of said diverging rods being spaced from the forward end of said fore and aft rod distances greater than the distances between the same and the rear end of said fore and aft rod.

5. A kite comprising a substantially square cover of flexible material, a fore and aft rod above said cover and connected at its ends with diagonally opposite corners thereof and a pair of rearwardly diverging rods connected at their inner ends with the forward portion of said fore and aft rod and connected at their outer ends with the lateral corners of said cover, said outer ends of said diverging rods being spaced from the forward end of said fore and aft rod distances greater than the distances between the same and the rear end of said fore and aft rod, and said diverging rods being inclined upwardly and rearwardly from said fore and aft rod to support said lateral corners in a plane above said fore and aft rod.

6. A kite comprising a cover of flexible material and a frame above said cover including a member arranged centrally of said cover and connected at its ends with the foremost and rearmost edge portions of said cover, and laterally extending members connected at their inner ends with said central member, inclined upwardly with relation thereto and connected at their outer ends with the respective lateral edge portions of said cover, said outer ends of said laterally extending members being spaced from the forward end of said central member distances greater than the distances between the same and the rear end of said central member.

7. A kite comprising a four cornered cover of flexible material, a frame above said cover including a narrow fore and aft member connected at its ends with diagonally opposite corners of said cover and lateral members connected at their inner ends with said fore and aft member, extending outwardly and upwardly from the respective sides thereof and connected at their outer ends with the lateral corners of said cover at points spaced from the forward end of said fore and aft member distances substantially equal to the length of the forward edges of said cover, and spaced from the rear end of said cover distances substantially less than the length of the rear edges of said cover.

8. A kite comprising a substantially square cover of flexible material, a frame above said cover including a fore and aft member connected at its ends with diagonally opposite corners of said cover, and a pair of members connected with said fore and aft member adjacent the forward end thereof, diverging upwardly and rearwardly

therefrom and connected at their outer ends with the other corners of said cover, said cover having openings adjacent the center and the forward corners thereof, and a line having at its upper end diverging parts extending through the respective openings and attached to said fore and aft frame members.

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