April 22, 1947. N. P. DE RODA 2,419,441

KITE

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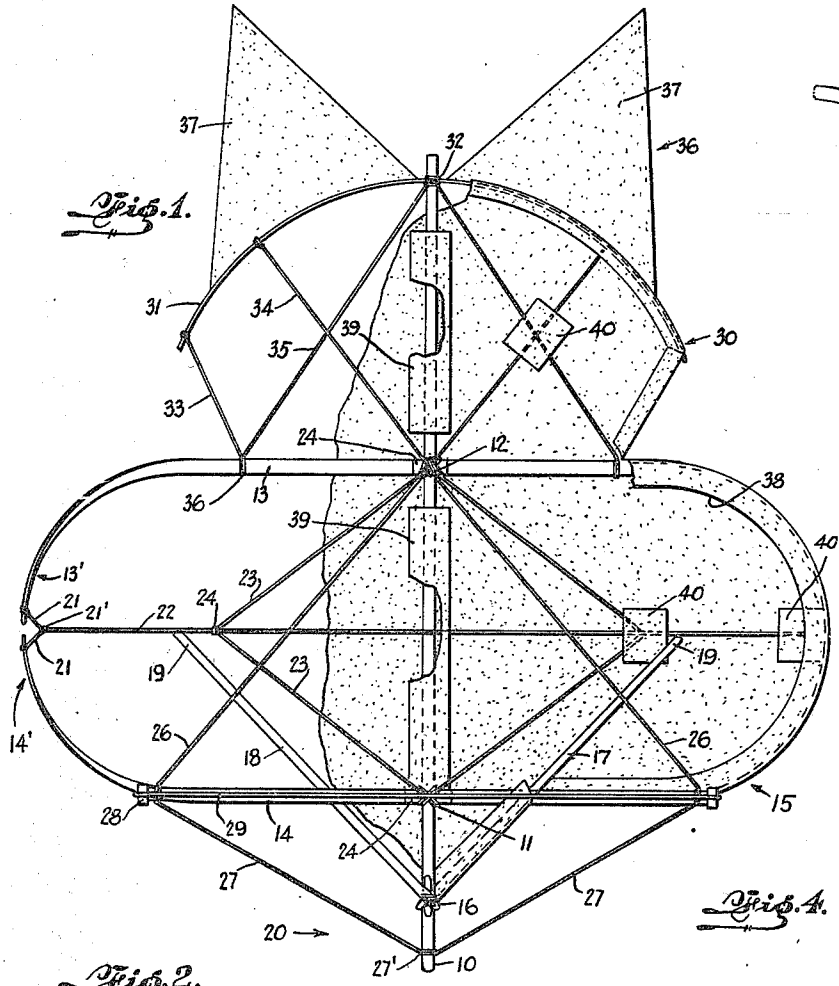


Fig. 1.

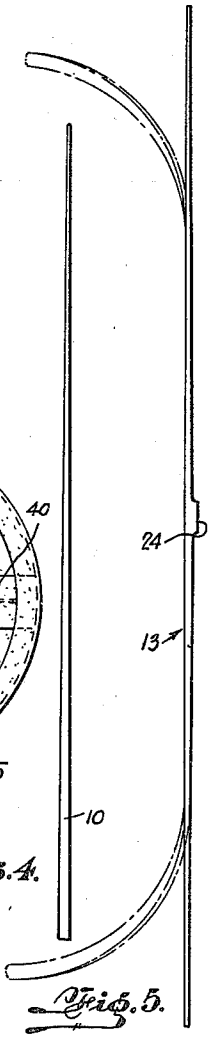


Fig. 4.

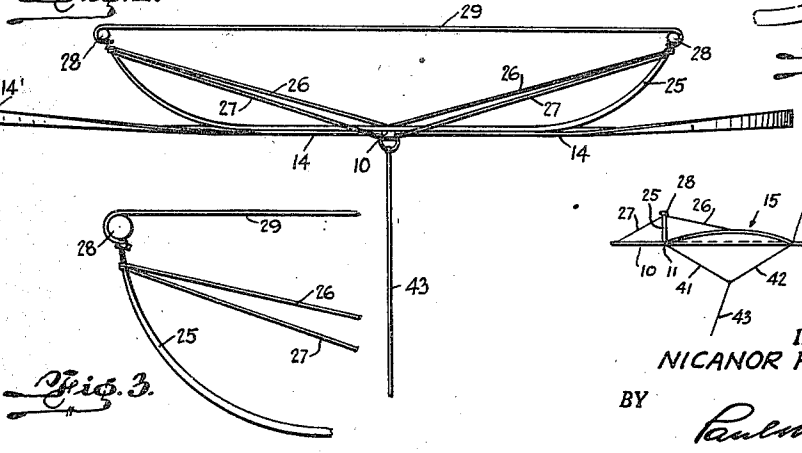


Fig. 2.

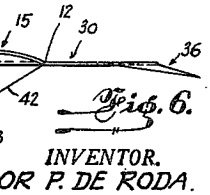


Fig. 6.

Fig. 3.

Fig. 5.

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KITE

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2 Claims. (Cl. 244—153)

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This invention relates to improvements in kites generally, and particularly to the construction, relation and cooperation of its supporting surfaces, and including vibratory sound-producing means activated by wind current.

One of the objects of the present invention is to provide a simple, inexpensive, easily launchable kite structure having two distinct supporting surfaces, one arranged transversely to the wind direction and the other constituting a relatively broad middle extension of the former and presenting a substantial supporting area in the wind direction.

Another object of this invention is to provide a kite structure composed of frontal, main, middle and rear portions, wherein the latter constitute freely hinged air flaps or plane surfaces adapted to stabilize the position of the device while in flight.

Another object of the invention is to provide in the aforedescribed structure a reinforcing arrangement whereby the middle and main portions are substantially rigidly held with one another, and wherein the reinforcements employed for that purpose extend beyond the front edge of the main portion to support the front portion or front element equipped with vibratory sound-producing means.

A still further object of the present invention is to provide with the main body of the device, highly resilient edge reinforcing members so constructed that their major portions assume a position within the plane of the main body, thus protecting the structure in lateral direction against shock and damage, whereas their end portions are twisted gradually to assume a position vertical to the main body, whereby the ends of the latter become strong and highly resilient for protection against breakage when the device should accidentally land upon one or the other wing end of the main body.

The foregoing and still further important objects and advantages of the present invention will become more fully apparent from the ensuing description in combination with the accompanying drawings, wherein:

Fig. 1 is a plan view of the kite, in accordance with the present invention, with the left portion thereof partially uncovered to expose the frame structure thereof;

Fig. 2 is a front elevation of the device;

Fig. 3 is an enlarged detail view of the end construction of the sound producing element of the device;

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Fig. 4 is a side view of the main or central reinforcing member of the kite;

Fig. 5 is a side view of the resilient edge reinforcing member of the device; and

Fig. 6 is a diagrammatical side elevation of the device in flight.

Referring now specifically to the figures, numeral 10 denotes the central, longitudinal reinforcement of the kite, to which are attached at 11 and 12 edge reinforcing members 13 and 14, such as shown in detail in Fig. 5. These edge reinforcing members form the support for main body or main portion 15, which is of an oblong shape and forms two wing planes with substantially oval ends. The central reinforcing member 10 extends forward of the main body and attached thereto at 16 are resilient wing reinforcing members 17 and 18. These reinforcing members are shaped similarly to the main reinforcement 10 in that they are thicker at the frontal end and are gradually thinned down towards their angularly disposed ends 19, which latter extend approximately to the longitudinal center of the main body. The portions of resilient reinforcements 17 and 18 in front of the main body are covered with a suitable material such as paper or cloth and they, together with the frontal portion of main reinforcement 10, form the frontal part or nose 20 of the kite.

It will be observed at the left-hand end of the figure that edge reinforcements 13 and 14 of the main body extend sidewise for a considerable distance from central reinforcement 10 and lay in the horizontal plane of the middle portion of the main body, whereas their bowed, gradually reducing ends are twisted to assume a vertical position, as indicated at 13' and 14'. The thin ends of the bowed termini of the edge reinforcements are rendered highly resilient and are held together by cord or other flexible means 21. The cord ends are knotted together at 21' to a longitudinal central cord 22, which latter connects the end joints of the bowed termini in longitudinal direction. In order to stabilize the position of main cord 22 there are provided cords 23 arranged in the shape of a diamond. These cords are attached at 24 to main cord 22 and are secured at points 11 and 12 to both the central reinforcing member 10 as well as to the thick center portions 24 of the edge reinforcements.

Frontal portion 20 of the kite includes a sound producing element which consists of a bow 25 secured with its center at point 11 to frontal edge reinforcement 14 and longitudinal reinforcement 10. The upwardly swung ends of the bow

are held in position by cords 26 and 27. Cords 26 extend rearward and are connected at point 12 to the main frame and rear edge reinforcement 13, whereas cords 27 are secured near the front tip of central reinforcement 10 at 27' from where they extend rearwards to the points of attachment with the bow ends. At the ends of the bow are provided seat members or saddles 28, over which are swung the end portions of an elastic band 29. That band is adapted to produce a sound when the device passes through a current of air.

Extending from the rear edge of main body 15 is the kite middle portion 30. The latter consists of an edge reinforcement 31 in the form of a bow which is centrally attached at 32 near the end of main reinforcement 10, whereas its legs are held in bowed position by end cords 33 and middle cords 34. In order to stabilize the rear end of main reinforcement 10 there are provided connecting cords 35 which extend from points 36 serving also as attaching points of end cords 33.

The rear or tail portion 36 of the device is formed by a pair of flaps 37 which are secured along one edge to bow 31, whereas the rest of their bodies are entirely free. They are intended to stabilize the device in flight.

The entire framework of the main and middle portions is covered by a suitable material such as paper or cloth, and the same material is employed to form flaps 37. It is preferred that the rounded end edges of the main body are reinforced by the covering, as indicated at 38, and that longitudinal main reinforcement 10 is also covered as indicated at 39. Similarly the cord or string members connecting the framework are preferably secured to the covering by suitable patches as indicated at 40.

Referring now to Fig. 6, it will be observed that at points 11 and 12 are secured the ends 41 and 42 of a guide cord 43 by means of which the device is launched and held in its flying position.

Due to the particular construction of edge reinforcements 13 and 14 the major position of the main body will be substantially horizontal, while the wing ends become somewhat bowed in upward direction, whereby an effective supporting surface for the device in flight is provided. Middle portion 30 also serves as supporting surface in longitudinal direction, whereas flaps 37 of the rear or tail portion form stabilizing means for the kite under ordinary flight conditions.

Particular attention is directed to the vertically twisted end reinforcements of the main portion, which not only serve for elevating the wing surfaces of the main body, but form resilient end structures, which, when the device lands sidewise, will protect it from serious damage. A similar protection is afforded by the front and rear extensions of the longitudinal main reinforcement 10, so that when the device falls front or rear point first, the ends of member 10 will absorb the shock of the impact.

The frontal part of the device is made heavier than the middle and rear portions. This is due to the fact that in the first place main reinforcement 10 is made heavier toward the front, and additionally bow 25, secured to frontal reinforcement 14, increases the weight. This increase in weight at the front end of the device is still further augmented by the arrangement of the

wing reinforcements 17 and 18. In consequence of the front part of the device being heavier than the rear portion, the tendency of the device, when falling, will be to come down with the front end first. Thus the possibility of damage to the device becomes considerably minimized.

Attention is also directed to the seat members or saddles 28 for the support of sound cord 29. During flight the sound cord is subjected to violent vibrations which in time would affect the ends of the bow material. It is preferred therefore to provide the ends over which sound cord 29 is strung with substantial reinforcements in the form of cylindrical blocks made of material sufficiently strong to withstand the rubbing effect produced by cord 29.

While the drawings illustrate a specific construction of the present invention, it is to be understood that slight variations and changes in the arrangement of reinforcements, tie cords and the grouping of the different sections of the device may be made, without departing from the scope of the invention, as defined in the annexed claims.

I claim:

1. A kite structure comprising a frame-like frontal part or nose and planes-forming main, middle and rear portions, the latter three portions constituting continuations of each other, said main portion having side wings extending beyond the width of the middle and rear portions, a centrally disposed longitudinal reinforcing member for the frontal part and the main and middle portions and comprising a tapered element larger and heavier at its front end and reducing in thickness and weight toward its rear end, the front end of said element extending beyond the nose, its reduced, substantially lighter rear end projecting beyond the middle portion, said main portion having edge reinforcements comprising elements tapering toward both ends and having a relatively thick central enlargements, the tapering ends being twisted from a horizontal to a vertical position, flexible means connecting the vertically positioned ends of these edge reinforcements, a bow supported by and centrally secured to the frontal edge reinforcement of the main portion and being held at substantially a right-angular position relative to said frontal reinforcement by frontal cords secured to the forwardly extending, large end of the central reinforcing member and by rearwardly extending cords secured to the central enlargement of the edge reinforcement of the middle portion, and an elastic band connected to the free ends of the bow.

2. A kite structure as per claim 1, the connection of the band to the free ends of the bows comprising seat or saddle members provided at the free bow ends, the ends of the band being swung over these members.

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