Jan. 21, 1958 G. T. LEE 2,820,603

KITE ACCESSORY

Filed June 10, 1953

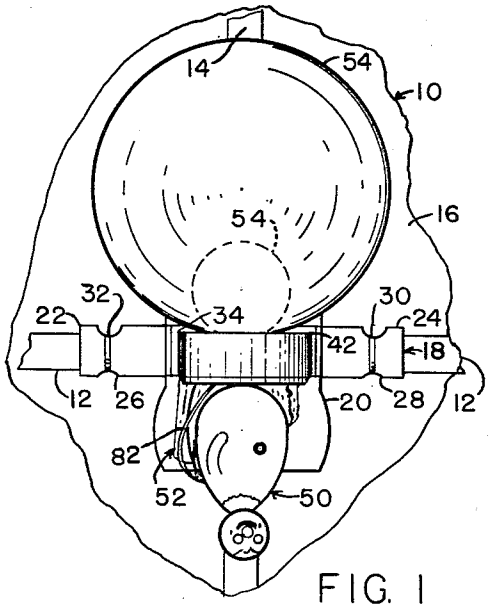


FIG. 1

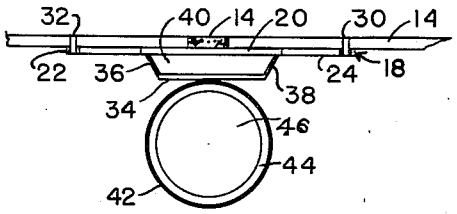


FIG. 2

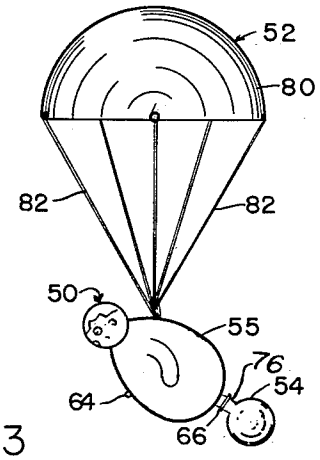


FIG. 3

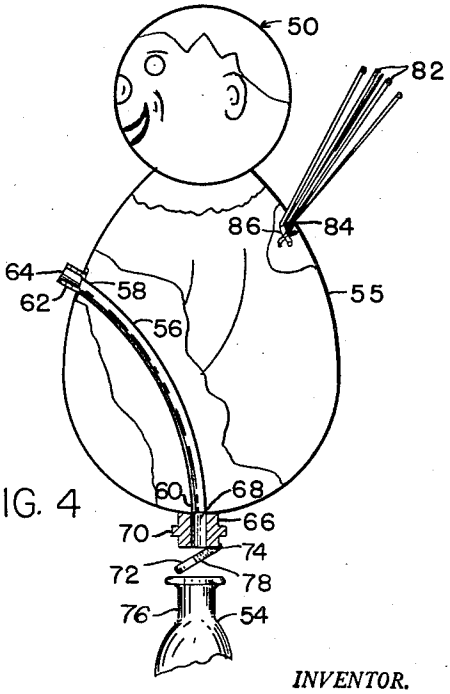


FIG. 4

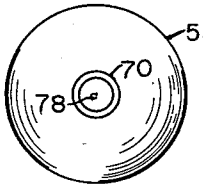


FIG. 5

INVENTOR.

GEORGE T. LEE

BY

Patrick D. Henry

ATTORNEY

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KITE ACCESSORY

George T. Lee, Parrott, Ga.

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This invention relates to an aerial toy and more particularly to an aerial toy of the sort which is automatically dropped from an aerial device, such as a kite, to float to the ground.

The type of toy presented in this invention has particular use as amusement in conjunction with the flying of well known aerial toy devices, such as lighter-than-air balloons or kites, where a person would derive pleasure from observing an object floating, falling, or gliding from the altitude of the aerial device which is being operated. It can also be instrumental in demonstrating to children, and adults, the practical effects of gravity, wind currents, parachuting, and so forth.

Other aerial toys are in existence but they require either the operation of ground control wires for releasing or rely on a somewhat temperamental form of attaching and releasing arrangement in order to attain the desired results. A primary object of the present invention is to provide an aerial toy which is simple in construction and dependable in operation.

Generally described, the present invention includes a heavier-than-air object, which may be in a form imitating a human or animal figure, having a drag means such as a parachute attached thereto, a retaining means for temporarily holding the object on an aerial device, and a contractible releasing means which is initially expanded but which automatically contracts and through this contraction operates with the releasing means to release the object from the aerial device.

Another object of this device is to provide a releasing means which after initial setting is self operating to allow a passage of flight and then automatically release the object from the aerial device. In conjunction with this, a feature is found in the arrangement of this releasing means whereby is permitted the use of an ordinary balloon as one form of achieving the result.

An additional object resides in the arrangement by which initial setting of the device is quick and easy.

Another feature is found in the construction and arrangement whereby the device may be manufactured inexpensively.

The foregoing represent only some of the objects of the present invention and other and further objects and advantages will become apparent from the following description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is an elevation view of the rear of a conventional kite with the invention positioned thereon prior to release.

Fig. 2 is a top plan view of the retaining bracket of Fig. 1 after the toy has been released.

Fig. 3 is an elevation view of the toy in flight.

Fig. 4 is an enlarged elevation view of the imitation figure of the toy with parts thereof broken away.

Fig. 5 is a bottom plan view of the imitation figure with the balloon removed to show a detail.

Referring to the drawings, the novel toy of this invention will be described in conjunction with parts of a conventional kite 10 as it is believed that this will bring about a quicker understanding. Kite 10 comprises a horizontal member 12 and a vertical member 14 tied together to form a cross with front cover 16 thereon. A retaining bracket 18, forming a part of this invention, has a center rectangular plate 20 with horizontal securing arms 22, 24 formed integrally therewith and extending from opposite sides thereof. Each of the arms 22, 24 is notched at a respective point 26, 28 and at this point a string or wire 30, 32 firmly ties a respective arm 22, 24 to the horizontal member 12 of kite 10. Bracket 18 also has formed integrally therewith a protruding front member 34 with bent ends 36, 38 connected with bracket 18. Ends 36, 38 space member 34 outwardly from plate 20 thereby forming an enclosure 40. Fixed to the front of front member 34 and protruding outwardly therefrom is a retaining ring 42 having an inwardly protruding annular ledge 44 at the bottom thereof. Ring 42 with ledge 44 forms a type of socket opening 46. The foregoing parts form the supporting structure for the toy proper and would normally remain as a permanent attachment on the kite 10 or on any other aerial device, such as a balloon.

The toy proper, being that part of the entire device which is intended to be dropped from an altitude, comprises an imitation figure, shown herein as a clown and designated generally at 50, a parachute, shown generally at 52, and a balloon 54. Through the use of the balloon 54 in inflated condition, and constructed in a particular manner as will hereinafter be presented, the figure 50 is positioned upside down in the ring 42 at the time that the kite 10 leaves the ground with the parachute 52 nested in enclosure 40 until such time as substantially all the air has escaped from the balloon 54 at which time balloon 54 passes through ring 42, the figure 50 falls free of kite 10 and the parachute 52 opens floating the figure 50 to the ground.

As is apparent in Fig. 1, when the balloon 54 with figure 50 securely attached thereto is inflated and upside down on ring 42 it will not slip through socket opening 46 and therefore the figure 50 is temporarily retained on bracket 18. When the balloon 54 assumes substantial deflated condition, such as in the dotted lines of Fig. 1, it will slip through socket 46 under the full gravity pull on weighted figure 50. In order to achieve this desired result, figure 50 has a hollow body portion 55, made from plastic, wood, or a similar heavier-than-air material, with an air tube or conduit 56 positioned therein having its ends 58, 60 glued or otherwise fixed to body 55. A rubber or wood mouthpiece 62 is attached to body 55 and to entrance 58 of conduit 56 in such a manner as to form a tight seal permitting air to enter through a bore 64 in mouthpiece 62. At the other end 60 of conduit 56 a cylindrical attaching button 66, with bore 68 and annular flange 70, is secured to body 55 and sealed to end 60 so that air will pass freely through bore 68. A flexible leather, or similar material, washer 72, preferably circular in shape and larger than the diameter of bore 68, has a portion thereof glued at 74 on button 66 so that when flush the washer 72 covers the opening to bore 68. Inasmuch as washer 72 is flexible, it will move out of place under pressure entering from mouthpiece 62 but pressure in an opposite direction on the bottom washer 72 portion forces washer 72 to close bore 68.

The balloon 54, which may be any sort of conventional flexible bag capable of being expanded under gas pressure, normally has the neck 76 thereof stretched tightly over the flange 70 so that it will remain fixed to body 55 and will expand under air pressure coming

through conduit 56 from mouthpiece 62, as for example, when air is blown from a person's mouth into the mouthpiece 62. According to this arrangement, the balloon 54 may be filled with air and will temporarily retain the air therein by virtue of the one way valve formed by washer 72. As it is necessary in the operation of this device, air is permitted to escape very slowly and gradually through a tiny pin hole 78 in the washer 72 permitting a small amount of air per minute to escape back through conduit 56 and out the mouthpiece 62. The balloon is very readily filled with a quantity of air and will retain its expanded condition for quite awhile during the time that the air escapes through pin hole 78.

Since it is desirable that the heavy body 55 float after being released rather than drop in a free fall, parachute drag means 52 is provided so as to be activated after the body 55 has left the kite 10. Parachute 52 is of conventional construction with a canopy 80 of plastic, silk, nylon or the like and a number of shroud lines 82 extending from spaced points about the periphery of canopy 80 to a common junction at a hole 84 in the back of body 55 where they are secured by knotting at 86 inside the body 55 or any other suitable way.

In positioning the device for operation, the balloon 54 in deflated condition is inserted from bottom to top through the ring 42 assuming the position of Fig. 1 with the figure 50 hanging upside down. The balloon is then inflated by blowing through conduit 56. Valve 72 opens readily allowing air to enter but closes off under back pressure from confined air in balloon 54 and the only escape is through the tiny hole 78. When the device is released from the hands it will hang for a period of time, depending upon the extent of the inflation of balloon 54, and during this interval the kite is permitted to reach any altitude. When the balloon 54 has assumed substantial deflation, as for instance in the dotted lines of Fig. 1, the weight of body 50 pulls the now collapsed balloon 54 through ring 42 and figure 50 falls free away from the kite to a distance sufficient to pull parachute 52 out of confinement in enclosure 40. When parachute 52 clears the kite it jerks figure 50 to an upright position and in the manner of Fig. 3, figure 50 is floated to the ground.

It is obvious that many changes and alterations may be made in the structure shown and described, for example, but not limited to, the bracket 14 can be varied in many ways, the air escape mechanism now employing valve 72 has many equivalents, other means are available to prevent free fall of figure 50. Therefore, the foregoing description and drawings are not a limitation on the scope of this invention and various alterations, substitutions, eliminations, changes, and modifications may be made within the spirit of this invention and within the scope of the appended claims.

I claim:

1. In a toy of the class described adapted for attachment on a kite or the like, a heavier-than-air object adapted to be positioned on a kite or the like to rise aloft therewith, parachute means associated with said object and being adapted to be nested with said object on the kite, retaining means adapted to be mounted on said kite, an enlarged contractile body attached to said object in a pre-selected degree of expansion and in selected enlarged condition being expansible to any one of a plurality of sizes and adapted to engage a portion of said retaining means thereby retaining said object on said kite, said sizes of said body being freely pre-selective to pre-determined the anticipated time delay before said body reaches the shrunken condition of release, said enlarged body being adapted to shrink at a pre-selected rate during a passage of flight time depending upon the degree of original expansion and in shrunk condition becoming disengaged from said bracket, thereby permitting said object to drop free of the kite and to fall under the influence of gravity and said parachute.

2. In a toy of the class described adapted for attachment on a kite or the like, a heavier-than-air object adapted for positioning on a kite or the like to rise aloft therewith, a protruding portion of said object being adapted to expand to any one of a pre-selected plurality of available pre-selectible sizes depending upon the desired time interval and thereafter slowly contract at a pre-selected rate, parachute means associated with said object and adapted to be normally nested with said object on the kite, retaining means adapted to be mounted on the kite releasably retaining said object, a portion of said retaining means defining an opening engaging an expanded portion of said object but becoming disengaged from said object portion upon the contraction there of after a pre-selected interval of time depending upon the degree of original expansion, said different sizes of said expansible protruding portion determining the time delay from initial expanded size when engaged on said bracket to substantial retracted condition when dis-engagement takes place thereby permitting said object to drop free of the kite and to fall under the influence of gravity and said parachute.

3. In a toy of the class described adapted for attachment on a kite or the like, an expansile gas tight bag having an entrance thereto through which said bag may be inflated by gas to a pre-selected size, means on said bag for preventing substantial escape of gases confined therein, control means on said bag permitting controlled slow emission of said gases confined therein governed by the extent of original, selected inflation, a weight associated with said bag, means associated with said weighted bag to prevent free fall thereof, and retaining means for attachment to a kite or the like having an open portion thereof smaller than said bag in any degree of inflation, said retaining means normally retaining said bag on said kite at the pre-selected degree of a inflation until substantially all of the gases therein have emitted therefrom at which time said weighted bag becomes free of said kite and falls under the effect of free fall preventing means, by virtue of which said bag is retained on said kite during the ascent thereof and the time interval of drop is governed by the extent of inflation of said bag.

4. In a toy of the class described adapted for attachment on a kite or the like, a heavier-than-air object having a conduit formed therein, a balloon having the open neck thereof sealed around one entrance to said conduit and being inflatable to one of many sizes to pre-determine the time of contraction thereof, a valve in said conduit controlling the entrance to said balloon to allow the entrance of gas therein and to prevent sudden or rapid escape of gases confined in said balloon, means associated with said conduit permitting gases in said balloon to escape slowly and gradually thereby governing the time interval between initial inflation and substantial contraction, retaining means adapted for positioning on a kite or the like, and means on said object for preventing free fall thereof, said last mentioned means being adapted for and initially inoperably positioned in association with said kite or the like, said retaining means normally retaining said balloon beginning in any one of its pre-selected sizes until substantially all the gases confined therein have emitted therefrom whereupon said balloon is released by the deflation thereof and after the pre-set delay, whereby said object will be released to descend from said kite.

5. In a toy of the class described adapted for attachment on an aerial device, a heavier-than-air object adapted for positioning on said aerial device to rise aloft therewith, means associated with said object and operable by air flow when under the pull of gravity to prevent the free fall of said object, releasable retaining means associated with said object and said aerial device and including a bracket portion adapted to be mounted on said aerial device, said retaining means having a con-

tractible portion mounted on said bracket portion, said contractible portion being extensible to any one of a plurality of pre-selected sizes and in any of said selected sizes of extension engaging said bracket portion thereby being temporarily attached thereto but in substantial retracted condition dis-engaging from said bracket so as to temporarily retain said object on said aerial device, said different sizes of said contractible portion determing the time delay from initial expanded size when engaged on said bracket to substantial retracted condition when dis-engagement takes place, said contractible portion in substantial contracted condition becoming dis-engaged from said bracket portion thereby permitting said object to fall from said aerial device.

6. In a toy of the class described adapted for attachment on a kite or the like, a heavier-than-air object having a conduit formed therein, a balloon having the open neck thereof sealed around one entrance to said conduit, said other entrance of said conduit being available to receive gases under pressure, a valve associated with said conduit to admit gas therethrough and into said balloon and said valve arranged to become temporarily closed to retain gas in said balloon when said balloon is under gas pressure, a small opening associated with said valve permitting gradual emission of said gases in said balloon thereby gradually causing said balloon body to diminish in size, means associated with said balloon and said object to prevent free fall thereof, a bracket for attachment to a kite or the like, a protrusion on said bracket forming a retaining hanger for said balloon when substantially inflated, said balloon being positioned on said hanger at a pre-selected degree of expansion and in such a manner as to become disengaged upon deflation thereof thereby falling with said object away from the kite whereby said toy is automatically released from the kite, after a pre-set interval of time.

7. In a toy of the class described adapted for attachment on a kite or the like, a heavier-than-air object having a conduit formed therein, a balloon having the open neck thereof sealed around one entrance to said conduit, said other entrance of said conduit being available to receive gases under pressure, a valve in said conduit openable to admit gas therethrough into said balloon and then temporarily closable to retain gas in said balloon, a small opening associated with said valve permitting gradual emission of said gases in said balloon thereby causing said balloon body to diminish in size, a parachute attached to said object, a bracket for attachment to a kite or the like, and a protrusion on said bracket having an opening formed therein, said balloon being positioned after pre-selected size thereof through said opening above one side of said protrusion with said object on the other side, said balloon when inflated being too large to pass through said opening but when reaching substantial deflation after the pre-selected time interval being pulled from said protrusion by the weight of said object as when the kite is above the ground, said parachute opening to prevent free fall of said object after disengagement from said kite, after a pre-set interval of time.

8. A toy adapted for attachment on and dropping aloft from an aerial device, a bracket member for attachment to said aerial device, a protruding support member on said bracket member having edge portions thereof spaced apart to form a support gap therebetween, a flexible gas-tight container having a closable opening therein through which a gas may be passed to expand said container to a selected degree of size, closure means for said container opening, a gas escape means for slowly emitting said confined gas from said container, a portion of said flexible container protruding from said container and remaining smaller in size than said support gap when said container is expanded to any selected size larger than said support gap, a weight on said container tending to pull said container from its position on said bracket but being prevented from such action while the container is expanded, and an air drag means associated with said weight, said container being positionable on said edge portions in any one of a number of pre-selected sizes of expansion by virtue of which the weighted container may be dropped from said aerial device after a pre-selected interval of time and said time of drop may be varied in successive drops simply by changing the degree of expansion of said container.

9. A toy adapted for attachment to and dropping from an aerial device such as a kite, a bracket member adapted for attachment to said aerial device and having bracket support edge portions protruding therefrom forming a support opening therebetween, a flexible gas container member having a means thereon for receiving gas therethrough into said container to expand same, a slow emission means on said container permitting gradual escape of said gas thereby causing gradual reduction in size of said container so that the time for collapsing said container from initial operation of said slow emission means depends upon the extent of original expansion thereof, a weight member attached to said container with the junction thereof on said container being smaller in size than said support opening irrespective of the degree of expansion of said container, said flexible container being capable of passing through said support opening in substantial condition of collapse and incapable of passing through said opening in any one of a number of degrees of expansion depending upon the initial chosen size thereof, by virtue of which said expanded container will be retained on said bracket as the aerial device ascends and falling therefrom when substantially all gas has escaped and the time delay of fall may be adjusted in successive falls by varying the initial container size.

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