

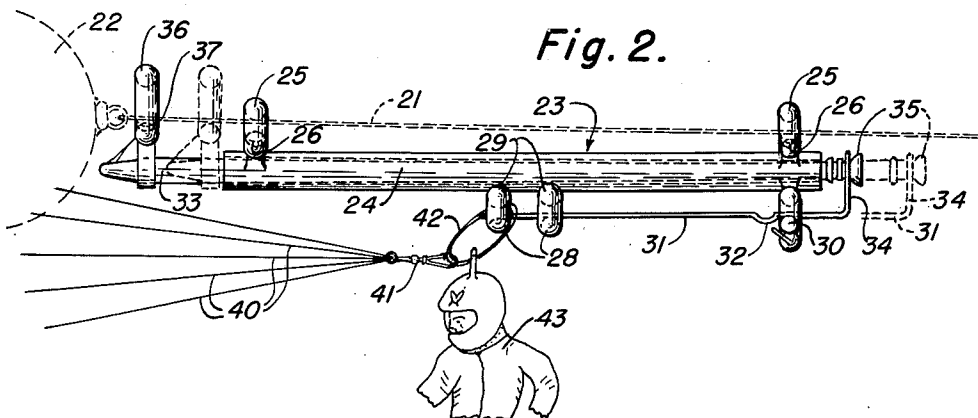
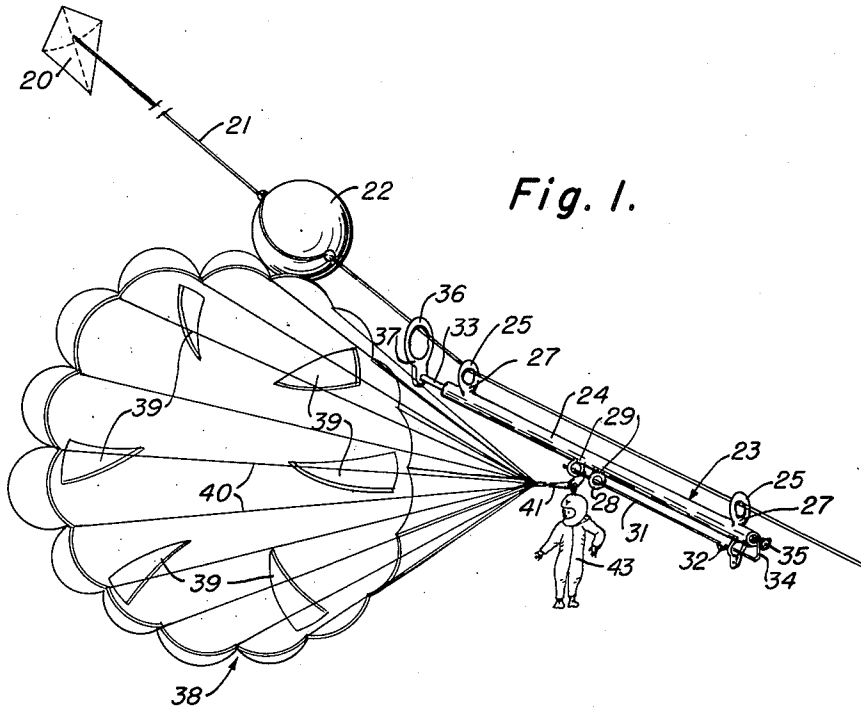
May 15, 1962

E. K. DROULLARD
KITE LINE SPACE CARRIER

3,034,751

Filed Sept. 20, 1960

2 Sheets-Sheet 1



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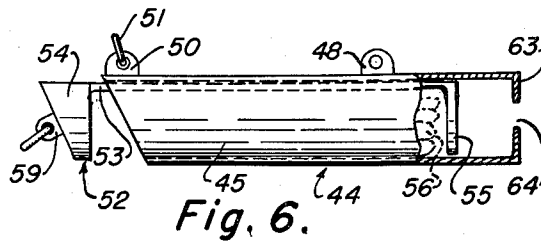
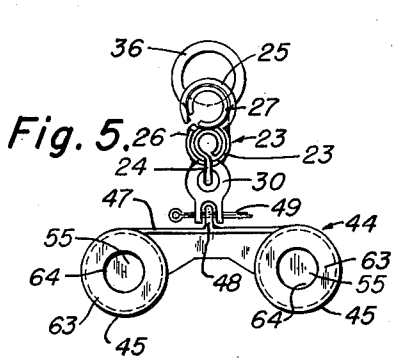
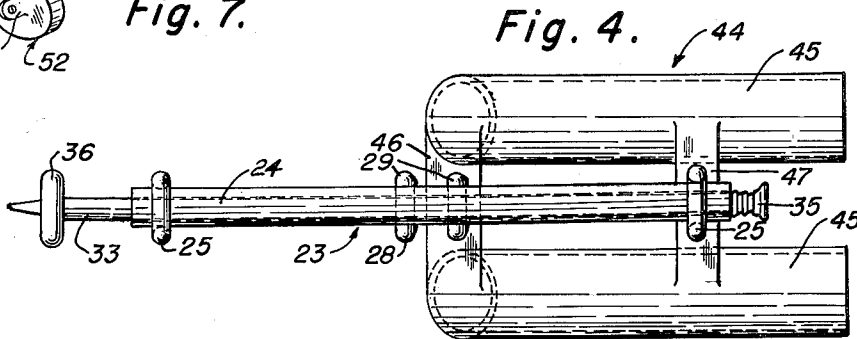
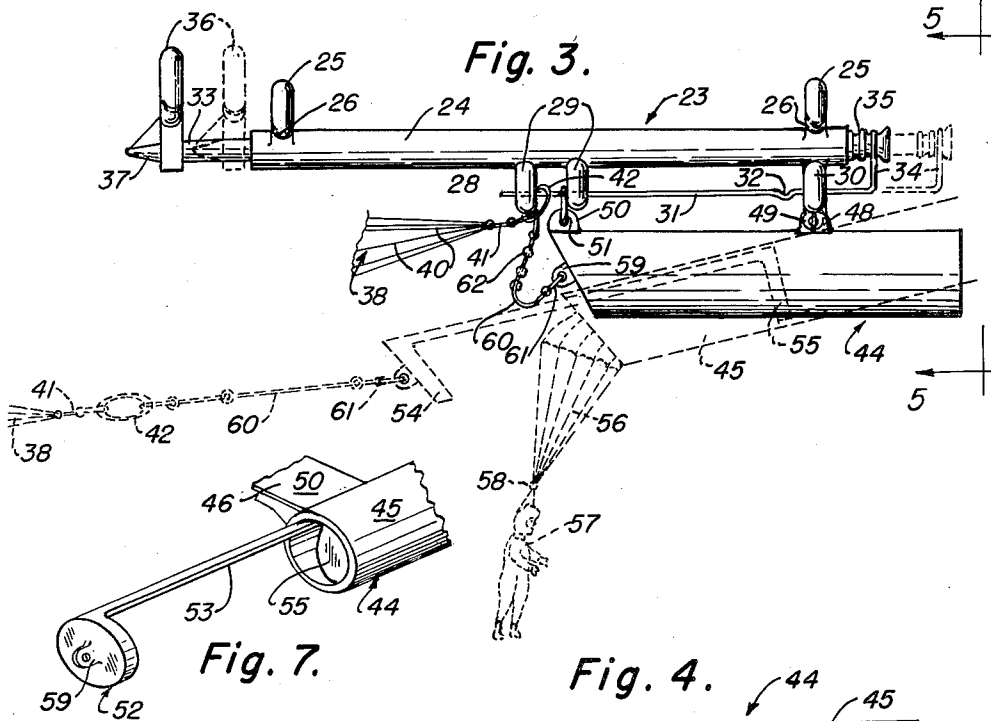
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KITE LINE SPACE CARRIER

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Filed Sept. 20, 1960, Ser. No. 57,186

2 Claims. (Cl. 244-155)

This invention relates to a kite, and more particularly to a toy parachute attachment for use with a kite.

The object of the invention is to provide an aerial toy or amusement device which is adapted to be used with a kite, whereby various types of objects can be caused to travel up along the kite string or line, and when the present invention reaches a predetermined point, such as a stop member which may be made to represent or simulate a space station, a mechanism will be actuated in order to automatically release a parachute or other object.

Another object of the invention is to provide a kite line space carrier which utilizes a highly effective release mechanism, and wherein there is provided a parachute which has a plurality of perforations or openings therein for actuating the release mechanism so that objects such as fanciful toys resembling space men or the like can be caused to descend when the mechanism of the present invention is actuated.

A further object of the invention is to provide a kite line space carrier which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same,

FIGURE 1 is a perspective view showing the position of the parts as the kite line space carrier travels up the kite line prior to release.

FIGURE 2 is a side elevational view of the kite line space carrier.

FIGURE 3 is a view similar to FIGURE 2 but showing an attachment for the present invention which can be used when desired.

FIGURE 4 is a top plan view of the assembly of FIGURE 3.

FIGURE 5 is a view taken generally on the line 5-5 of FIGURE 3.

FIGURE 6 is an elevational view illustrating one of the containers, and with parts broken away and in section.

FIGURE 7 is a fragmentary perspective view illustrating certain constructional details of the present invention.

Referring in detail to the drawings, the numeral 20 indicates a kite, FIGURE 1, and the usual string or line 21 is connected to the kite 20. A stop member 22 which may be shaped to resemble a space station is suitably affixed to the line 21, and according to the present invention there is provided a kite line space carrier which is indicated generally by the numeral 23, and the carrier 23 comprises a hollow tube 24 which has its ends open. Upwardly disposed hooks 25 are suitably affixed to the tube 24, and these hooks 25 are provided with notches or splits 26 so as to permit attachment of the device to the kite line 21, and inner rings 27 may be positioned within the hooks 25.

As shown in FIGURE 2 for example, there is provided a rack 28 which includes a pair of spaced parallel loops 29 that depend from the intermediate portion of the tube 24 and these loops are secured to the tube 24 or formed integral therewith.

The numeral 30 indicates a loop which depends from the rear of the tube 24, and this loop 30 defines a guide member for a purpose to be later described. A release wire 31 has its front end projecting through the loop 29 of the rack 28, and the release wire 31 is provided with an offset shoulder 32 which is arranged contiguous to

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the rear loop 30. The numeral 33 indicates a release rod which is slidably mounted in the tube 24, and the wire 31 includes a transverse end portion 34 which is suitably connected to the rear end 35 of the rod 33. The numeral 36 indicates a loop which is arranged on the front end of the rod 33, and the loop 36 is provided with a slot or split 37 whereby the line 21 can be readily extended through when desired.

As shown in the drawings, there is provided a parachute 38 which is provided with a plurality of spaced apart perforations or openings 39 therein, and the parachute 38 is provided with shroud lines 40 which may be swively connected as at 41 to a ring 42, and the ring 42 is adapted to be mounted on the front of the release wire 31 between the loops 29. A fanciful object 43 which may be shaped to resemble a space man may be connected to the ring 42 as for example as shown in FIGURE 1.

Referring now to FIGURES 3 through 7 of the drawings, there is illustrated a modification wherein the numeral 44 indicates an attachment or support unit which can be used with the carrier 23, and the attachment 44 comprises one or more hollow containers or canisters 45, and the canisters 45 may be connected together by front and rear braces 46 and 47. An apertured ear 48 on the upper portion of the rear brace 47 is adapted to be pivotally or swively connected to the loop 30 by means of a clip or pivot pin 49.

There is also provided on the front brace 46 an apertured ear 50, and a front suspension ring 51 is connected to the ear 50, and the ring 51 is mounted on the release wire 31, and the ring 51 is interposed between the loops 29, as for example as shown in FIGURE 3.

The front end of each container 45 is open, and the numeral 52 indicates a cradle which is adapted to be releasably or removably positioned in each container 45. As shown in FIGURE 7 for example the cradle 52 includes a connecting portion 53 as well as front and rear sections 54 and 55, and a member such as a folded parachute 56 is adapted to be selectively retained in the container 45 between the sections 54 and 55, and if desired a fanciful object such as a toy simulating a man 57 may be connected to the folded parachute 56 as for example by means of a connection 58 which may have a swivel construction therein.

An apertured lug 59 is secured to or formed integral with the end section 54 of the cradle 52, and a release line 60 serves to connect the lug 59 to a ring such as the ring 42 which has the parachute 38 connected thereto, and the release line 60 may have swivel portions 61 and 62 adjacent the ends hereof.

As shown in FIGURES 5 and 6 the rear ends 63 of the container 45 may be provided with central openings or cutouts 64.

From the foregoing, it is apparent that there has been provided an aerial toy which consists of a kite line space carrier, and in use with the parts arranged as shown in the drawings and in particular as shown in FIGURES 1 and 2, it will be seen that the carrier 23 will travel up the kite line 21 until the member 36 engages the stop member 22 which is affixed to the line 21 and when this occurs, the release rod 33 will be pushed rearwardly in the tube 24 as for example from the solid line position of FIGURE 2 to the dotted line position of FIGURE 2. In view of the fact that the wire 31 is connected as at 34 to the rear end 35 of the rod 33, it will be seen that this movement of the rod 33 will cause the wire 31 to be shifted rearwardly so that the front end of the wire 31 will be moved to the rear of the front loop 29 so that the ring 42 can drop down from between the loop 29 of the rack 28. With a figure such as the space man 43 connected to the ring 42, it will be seen that upon release of the ring 42, the parachute 38 will be able to fall free of the carrier 23 so that a member such

as the unit 43 can descend to the earth and this can be retrieved by the child or other user and used over and over again. The provision of the plurality of openings 39 in the parachute 38 helps insure that the parachute will move through the air with the proper and most efficient movement.

In FIGURES 3 through 7 there is illustrated a modification wherein an attachment 44 is adapted to be used with the carrier 23, and the attachment 44 includes one or more of the canisters or containers 45 which each have a cradle 52 removably positioned therein, and a folded parachute 56 is adapted to be held in the container 45 between the front and rear sections 54 and 55 of the cradle 52. The release line 60 connects the lug 59 on the front of a cradle 52 to the ring 42, and the parachute 38 is also connected to the ring 42. The attachment 44 includes the rearwardly disposed ear or lug 48 which is pivotally connected to the lower rear loop 30 by means of the pin 49, and the ring 51 connects the front lug 50 of the attachment 44 to the front portion of the wire 31, as for example as shown in FIGURE 3. Then, when using the assembly of FIGURES 3 through 7, it will be seen as the space carrier 23 travels up along the kite string 21, when the loop 36 strikes or engages the stop member 22, the plunger or rod 33 will be moved rearwardly as for example from the solid line position of FIGURE 3 to the dotted line position of FIGURE 3 and this will move the wire 31 rearwardly so that the ring 51 and the ring 42 can drop down between the loops 29, and the parachute 38 will help pull the cradle 52 out of the container 45 so that the folded parachute 56 can drop downwardly as for example as shown in dotted lines in FIGURE 3, and this parachute 56 will open so as to permit a chamber such as the member 57 to descend gracefully through the air.

It is to be noted that the pin 49 provides a pivotal connection between the attachment 44 and the loop 30 so that the container 45 can move from the solid line position of FIGURE 3 to the dotted line position of FIGURE 3.

The parts can be made of any suitable material and in different shapes or sizes.

It will therefore be seen that there has been provided a kite line space carrier which is in the nature of a toy and wherein various light weight objects can be carried along a kite line such as the line 21 to be dropped off or parachuted to the ground. The carrier is adapted to be made of a light weight material such as plastic or aluminum and includes the tube 24 which has the circular hooks or loops 25 at each end for hanging to the line 21. On the underside and arranged at the intermediate portion of the tube 24 are two closely spaced loops 29 which define a rack 28. There is also provided a loop 30 on the rear lower portion of the tube which acts as a guide for the release wire 31 and the loop 30 also provides a suspension mounting means for the detachable canisters 45. The release rod 33 extends through the tube 24 and the loop 36 is mounted on the front end of the rod 33, and at the rear end of the rod 33 is attached the wire 31 as indicated by the numeral 34. The release wire extends from the rear of the rod through the rear guide member 30 through the loops 29 of the rack 28, and the small bend or shoulder 32 in the release wire prevents the release wire and the rod from sliding rearward by pull of gravity as for example while the center is enroute up the kite line 21.

The space carrier is adapted to be hooked on to the kite line of the flying kite by slipping the line 21 through the slots such as the slots 26 and 37 in the loops 25 and 36.

The carrier parachute 38 is connected to the rack 28 on the lower portion of the tube 24 by sliding the release wire 31 forward through the chute ring 42 and the rack loops 29. The carrier parachute 38 may be provided with a plurality of slots or perforations 39, having a triangular shape or any other shape or outline, as for ex-

ample as shown in FIGURE 1, and these openings or perforations 39 permit air to spill laterally and longitudinally from the chute so as to cause the chute to carry downwind and this provided maximum pull up the kite line 21. This is an improvement and important advantage over an ordinary parachute with or without a single perforation which has a tendency to pull normal to the kite line and not along it. Thus, an ordinary parachute causes the carrier to stall on the kite line since there is a negligible or zero component of pull in the direction up the kite line when the pull of the chute is largely or entirely normal to the line. The carrier parachute 38 may have a desired number of perforations such as six kinds of perforations and a plurality of shroud lines 40 such as sixteen shroud lines. The shroud lines 40 are adapted to be connected to a swivel 41 which can be readily hooked and unhooked from the parachute ring 42 or to various small objects which are to be dropped on the chute.

The stop member 22 provides a release or impact point at any place along the kite line and this member 22 may be made to resemble a space station and is adapted to be made of light weight material in the shape of a hollow sphere, spheroid, cylinder, cone, polyhedron, or a plate with a suitable profile or configuration or any whole or part combination thereof, and the member 22 may be attached to the kite line 21 in any suitable manner without breaking the kite line as for example by means of girth hitches which can be secured to diametrically opposed binding posts or poles that protrude from the space station 22. If desired suitable ornamentation or design can be added to the member 22 to enhance the attractiveness thereof.

In use the kite line space carrier of the present invention operate as follows. The carrier 23 is pulled up the kite line 21 of the flying kite 20 by the carrier parachute 38, and the parachute 38 is hooked to the release rack 28 on the underside of the carrier tube 24. When the carrier reaches or collides with the space station 22 that is attached to the kite line 21, the release or guide loop 36 strikes the space station 22 which drives the release rod 33 backwards so as to slip the release wire 31 from the rack whereby the carrier parachute will be freed so that the parachute can drift to the ground and carry the space man 43 or any other small weight or object with it. The carrier then returns by gravity down the kite line to the handler or user and can then be sent up again as desired.

Referring to FIGURES 3 through 7, it will be seen that the attachment 44 provides a means whereby additional parachutes or other small objects can be utilized, and the attachment 44 may consist of a detachable light weight canister 45, or twin canisters 45 may be utilized and the twin canisters 45 may be connected together by means of the braces 46 and 47. The removable clip pin 49 connects the lug or ear 48 to the loop 30, and when the attachment 44 is used, a release line 60 with a swivel 61 and 62 at each end, connects the carrier parachute ring 42 to the lug 59 on the front end of the cradle or cradles 52, and additional parachutes 56 are adapted to be loaded in these cradles, or other small objects can be loaded in the cradles and temporarily retained in the canisters 45. The front suspension ring 51 of the canister is secured in the rack along with the carrier chute ring 42. Then upon impact with the space station, the carrier chute ring 42, and the front suspension ring 51 of the canister assembly will be released so as to drop the front of the canister 45 which pivots on the rear removable suspension pin 49. The carrier chute 38, aided by gravity pulls the cradle or cradles from the canister or canisters and frees the contents 56 and 57 which drop or drift to the ground. The cradle or cradles are carried to the ground attached to the carrier chute 38.

The following will serve as examples of different types of objects that can be carried by and dropped from the

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kite line space carrier: glider planes, helicopters with free spinning rotors, parachutes with all types of objects such as weights, weighted ribbons, toy dud bombs, aluminum foil, flour, colored powders, bits of paper, messages on paper and paper streamers.

It is to be noted that if a material such as a thermoplastic material is used in making the carrier, it may be necessary to put an aluminum liner or rim 27 inside the suspension loop 25 to prevent burning and notching of the loops by heat of friction with the kite line. An aluminum sheath may be arranged on the upper part of such loops and may cover more than half of the loops.

The number and shape of the perforations 39 can vary as desired.

In the prereleased position as shown in FIGURE 3, the carrier parachute ring 42 is secured in the rack 28 along with the front suspension ring 51 of the canister attachment 44. As shown in FIGURE 5, an aluminum ring 27 may be arranged inside of the suspension loop 25 and this rim 27 may cover only approximately three-fourths of a circumference of the eye of the loop so as to leave the gap 26 in the rim to coincide with the slot 26 through which the kite line is slipped. The aluminum rim may be made to rotate or slide inside of the loop to close the hanging slot in the plastic loop and lock the carrier on the kite line. The main purpose of the rim is to prevent burning and notching of the loop by the kite line and these rims can be used in both suspension loops.

The holes or openings 64 on the rear ends 63 of the canisters are holes for use in prodding the contents of the canisters in the event they become stuck or lodged in the canisters.

The cradles are of a length so that in loaded position the cradles will fit into the canisters with the front of the cradles flush with the front end of the canister chutes or members 45.

Heretofore various types of aerial toys have been provided and patented, but the present invention is believed to possess certain important differences and advantages over these prior devices. For example in prior devices ordinary parachutes have been used, that is ones without perforations, and this will only cause the device to stall on the kite line but will also pull the kite line down. In addition certain prior devices have lacked a positive release mechanism, so that it has been necessary to lower the kite to free the device and parachute for another trial. In addition prior devices have had an unequal weight distribution and this had a tendency to retard movement up the kite line and some of the devices had constructions which restrict freedom of movement of the device up the kite line so that the parachute may be released prematurely. Also prior devices have been constructed so that it was necessary to break the kite line to mount or dismount the mechanism on the kite line, and working with the loose end of a kite string in the wind is unhandy and there is always the risk of losing the string and the kite, and the present invention overcomes these disadvantages or shortcomings.

Minor changes in shape, size and rearrangement of de-

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tails coming within the field of invention claimed may be resorted to in actual practice, if desired.

What is claimed is:

1. A kite line space carrier comprising a hollow tube having upwardly disposed kite line engaging hooks thereon, said hooks having slits therein whereby said hooks may be attached to a kite line, a rack including a pair of spaced apart loops depending from the intermediate portion of said tube, a loop depending from the rear of said tube and said last named loop defining a guide member, a release wire having its front end projecting through the loops of said rack, an offset shoulder on the rear portion of said wire adjacent said guide member; a release rod slidably mounted in said tube, a line engaging loop on the front end of said release rod, said line engaging loop, having a slit therein whereby said loop may be attached to a kite line, the rear end of the release wire being connected to the rear of the release rod; a parachute having a plurality of spaced apart perforations therein, a chute ring connecting said parachute to the front of the release wire, said ring being positioned between the loops of said rack, a support unit pivotally connected to said guide member, an apertured ear on the front portion of the support unit and a ring positioned between the loops of said racks connecting said ear to said release wire.

2. A kite line space carrier comprising a hollow tube having upwardly disposed kite line engaging hooks thereon, a rack including a pair of spaced apart loops depending from the intermediate portion of said tube, a loop depending from the rear of said tube and said last named loop defining a guide member, a release wire having its front end projecting through the loops of said rack, an offset shoulder on the rear portion of said wire adjacent said guide member; a release rod slidably mounted in said tube, a line engaging loop on the front end of said release rod, the rear end of the release wire being connected to the rear of the release rod; a parachute having a plurality of spaced apart perforations therein, a chute ring connecting said parachute to the front of the release wire and said ring being positioned between the loops of said rack, a support unit pivotally connected to said guide member and said support unit including at least one hollow canister, an apertured ear on the front portion of the support unit, a ring connecting said ear to said release wire and said last named ring being positioned between the loops of said racks, a cradle removably mounted in said canister, an apertured lug on the front of the cradle, and a release line connecting said apertured lug to the chute ring.

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