

Feb. 16, 1954

DORIS A. MCKAY NEE MILLIGAN

2,669,403

GLIDER CARRYING AND RELEASING DEVICE FOR KITES

Filed July 21, 1952

2 Sheets-Sheet 1

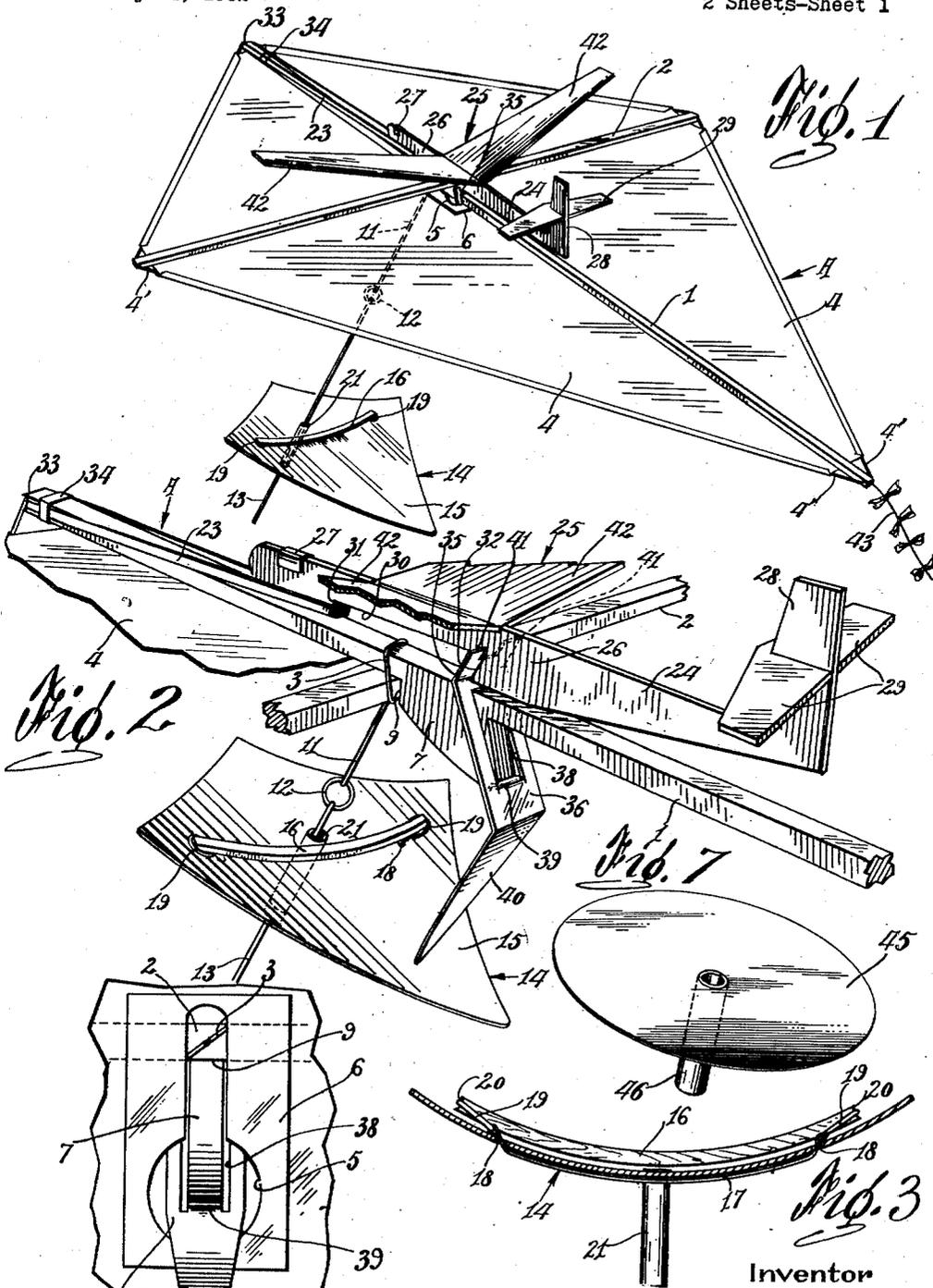


Fig. 2

Fig. 1

Fig. 7

Fig. 3

Fig. 4

Inventor

Doris A. McKay nee Milligan

Walter A. Bastien

Attorneys

Feb. 16, 1954

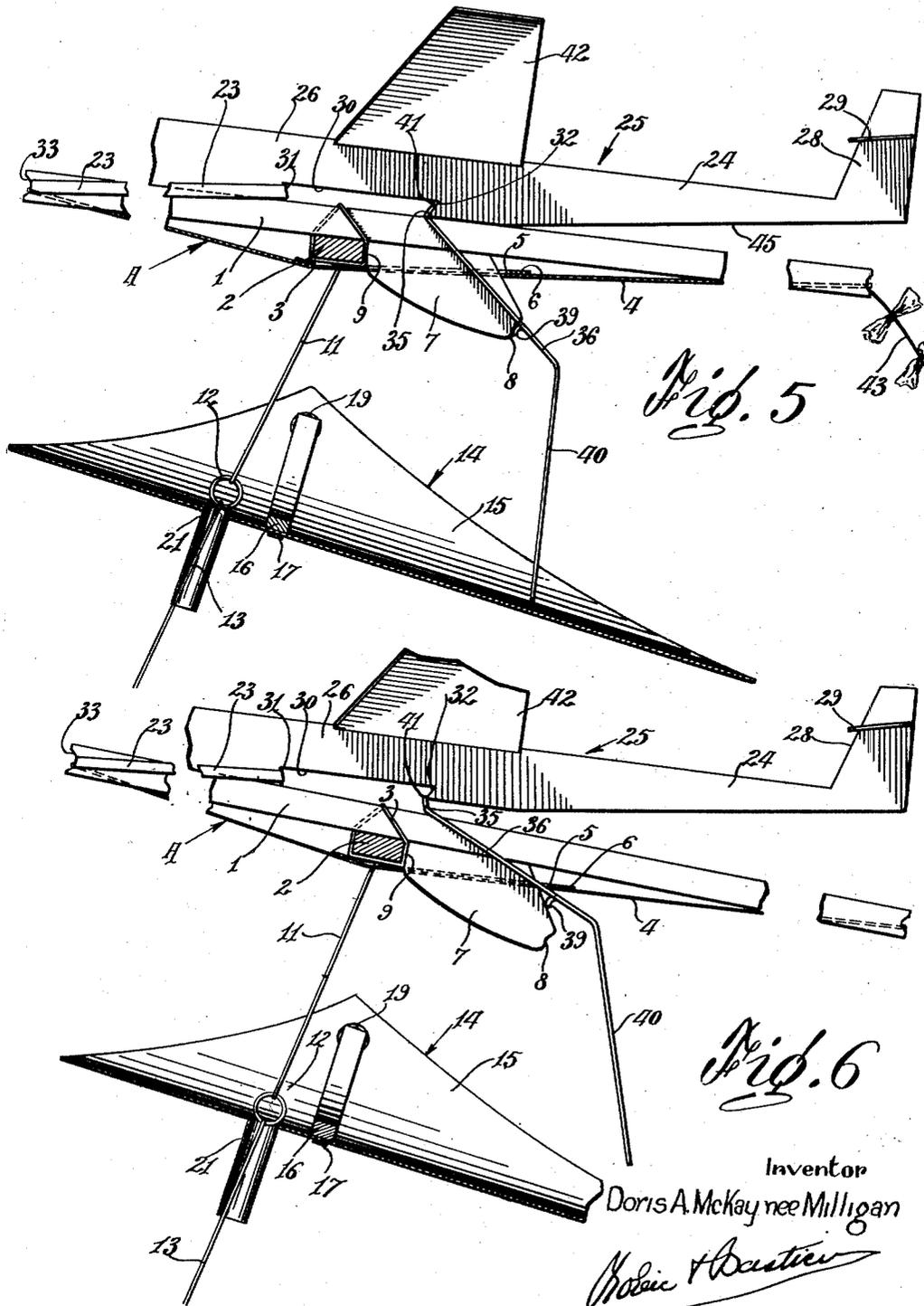
DORIS A. MCKAY NEE MILLIGAN

2,669,403

GLIDER CARRYING AND RELEASING DEVICE FOR KITES

Filed July 21, 1952

2 Sheets-Sheet 2



Inventor
Doris A. McKay nee Milligan

Malcolm A. Austin
Attorneys

UNITED STATES PATENT OFFICE

2,669,403

GLIDER CARRYING AND RELEASING DEVICE FOR KITES

Doris A. McKay nee Milligan, Toronto, Ontario,
Canada

Application July 21, 1952, Serial No. 299,983

10 Claims. (Cl. 244—155)

1

The present application is a continuation-in-part of application Serial No. 220,997, filed April 14, 1951, now abandoned.

The present invention relates to kites and more particularly to a glider carrying kite and means for releasing said glider when the kite is in flight.

According to the invention there is provided a comparatively large kite, which will hereinafter be termed "a carrier kite," attached to a conventional kite string and having a glider mounted atop thereof under the tension of an elastic band and normally held in tensed position by means of a trigger. There is also provided a small kite or release kite which is adapted to climb the kite string to eventually contact the trigger in order to release and launch the glider from the carrier kite. The glider, being launched from a relatively considerable height, will travel a substantial distance before landing.

Accordingly, the general object of the present invention is the provision of a device of the character described which is of simple construction and inexpensive to manufacture and yet effective and efficient in use.

An important object of the present invention is the provision of means for releasing the glider from the carrier kite while the latter is in flight.

Another important object of the present invention is the provision of novel glider releasing means which are simple in construction and efficient in operation.

Still another important object of the present invention is the provision of glider releasing means which require but a slight force to operate.

Yet another important object of the present invention is the provision of a device of the character described in which the glider is so shaped and so held on the carrier kite that it will easily clear said kite during the initial portion of its launching.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings in which:

Figure 1 is a perspective view of the kite, glider and release kite according to the invention;

Figure 2 is a fractional perspective view of the assembly showing the release kite about to contact the trigger;

Figure 3 is a cross-section of the release kite;

Figure 4 is a partial plan view of the trigger assembly, looking underneath the carrier kite;

2

Figure 5 is a sectional elevation of the assembly showing the release kite about to contact the trigger for releasing the glider;

Figure 6 is a similar sectional elevation showing the trigger in releasing position; and

Figure 7 is a perspective view of a modified release kite in the form of a disk.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, the carrier kite, generally indicated at A, comprises an upper longitudinally extending frame member 1 and a lower cross frame member 2 attached together at their junction by means of a string loop 3. The frame members support the light weight sheet material 4 attached along its edges to the endless string 4' passing over the ends of the frame members 1 and 2.

The sheet material 4 is provided with a trigger aperture 5, the edges of which are reinforced by means of an additional layer 6 of sheet material. The longitudinal frame member 1 has a dependent stop block 7 passing through the trigger aperture 5 and provided at its lower end with a transverse groove 8.

For better stability, the cross member 2 abuts against the front face 9 of said stop block 7 as shown more particularly in Figures 5 and 6.

A short string 11 is attached to the loop 3 at its upper end and to a ring 12 at its lower end, said ring being attached to the kite string 13.

The ring 12 serves to abut the release kite 14 while the latter ascends the kite string 13. Said release kite 14 comprises a lozenge shaped sheet 15 of substantially rigid fabric curved upwardly so as to present a substantially convex bottom to the windward side. This sheet 15 is maintained in a curved state by means of a transverse strut member 16 made of light wood or the like, contacting the upper face of said sheet 15, and by means of an elastic band 17 contacting the under face of the sheet 15 and passing through side apertures 18 made therein to be attached to the recessed ends 20 of the member 16 by means of rings 19. The kite string 13 passes and is guided through a short tube 21 secured to the sheet 15 on the centre longitudinal axis thereof and forwardly of the centre of gravity of said release kite 14. Thus, when the release kite is loosened along the kite string 13, it will climb thereon in a slightly inclined position. The convex shape of said release kite will render the same very stable in ascent and will obviate the use of a tail.

The glider, generally indicated at 25, is pref-

3

erably made of light wood and comprises an elongated fuselage 29, the nose or forward end of which is weighted by means of a metal element 27, the tapering rear portion 24 of which is provided with a tail assembly 28 having inclined tail wings 29 as shown in Figure 5 or 6. The lower edge of the middle portion of the fuselage 26 is provided with a recess 30 having a dovetail cross-section forming inclined front and rear shoulders 31 and 32 respectively. The front shoulder 31 engages an elastic band 23, the forward end of which passes around the front grooved end 33 of the longitudinal frame 1. The band 23 is prevented from jumping off from said recessed end 33 by a collar 34 enclosing the front portion of the band 23 and the frame member 1.

The back shoulder 32 of the recess 30 is engaged by the bent back upper transverse portion 35 of the trigger generally indicated at 36 and which consists of a light weight metal plate provided with a central rectangular aperture 38 for receiving the longitudinal frame member 1 and the stop block 7.

The lower edge of said aperture 38 is bent back to form an arcuate lug 39 engaging the arcuate recess 8 made at the lower end of the stop block 7. The trigger 36 has a downwardly extending tapering arm 40 disposed at right angles to the carrier kite A when said trigger is in armed position as shown in Figure 5. The upper end of the trigger 36 is provided with upwardly projecting ears 41 engaging the sides of the fuselage 29 in order to prevent sideways displacement of the glider 25 when in armed position.

It will be understood that, as the release kite 14 ascends the kite string 13, it assumes a slightly inclined position due to the off-center placement of the guide tube, as shown in Figure 5; when it contacts the ring 12, its tail end will kick up enough to strike the trigger arm 40 of the trigger 36, causing disengagement of the arcuate lug 39 from the groove 8 and pivotal movement of said trigger. The normally rearwardly inclined top cross portion 35 of said trigger 36 will then take a forwardly inclined position, as shown in Figure 6, at the same time as the whole trigger moves forwardly to disengage the shoulder 32 of the fuselage 29 and release the glider 25 which is thus shot forwardly into space by means of the elastic band 23.

Due to the fact that the nose of the glider 25 is weighted, as shown at 27, and that the tail wings 29 are tilted downwardly, the glider, upon launching, will not be affected by the wind to tangle with the elastic and will easily clear the forward part of the kite because its rear portion 24 is tapered.

The glider wings 42 are disposed directly over the trigger aperture 5 and the flow of air upward through said aperture provides lift for the glider and thereby minimizes its weight on the kite A when the same is in flight.

A conventional tail 43 is attached to the rear end of the kite.

Although the form of release kite shown in Figures 1, 2 and 3 has been described, the simplified construction of Figure 7 has been found to be equally efficient, although much simpler.

This construction consists of a disc 45 having at its center a tube 46 similar in size and function to the tube 21 of the kite 14. Said tube 46 is adapted to receive, or be mounted over, the kite string 13. The operation is the same as in kite 14.

4

While a preferred embodiment according to the invention has been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

I claim:

1. A device of the character described comprising a carrier kite having a kite string, a glider releasably mounted on said carrier kite, elastic means connecting said glider and said carrier kite, trigger means pivoted on said kite and normally holding said glider against the force exerted by said elastic means, and means slidable along said kite string adapted to abut said trigger means for releasing said glider from said carrier kite.

2. In combination, a carrier kite having a longitudinal frame member, a glider mounted on said frame member, a kite string attached to said frame member, a release kite slidable on said string towards said carrier kite, resilient means connecting said glider to the forward end of said frame member, a trigger pivoted on said frame member having an upper transverse portion engaging said glider and having a dependent lower arm adapted to contact said release kite to pivot said trigger for releasing said glider.

3. In a kite having a frame member, a glider mounted on said frame member, resilient means attached to said frame member and engaging a forward shoulder made in said glider, a trigger pivoted on said frame member and engaging a rearward shoulder made in said glider, a string attached to said frame member, and a release kite slidable on said string to abut said trigger for releasing said glider.

4. In combination, a carrier kite, a kite string for said carrier kite, a glider having a recess in the bottom thereof forming a forward shoulder and a rearward shoulder, an elastic band affixed to the carrier kite and engageable with said forward shoulder, a trigger pivoted on said carrier kite and having a portion engageable with said rearward shoulder and a dependent arm, and a release kite slidable on said string and adapted to contact said trigger arm to release and launch said glider from said carrier kite.

5. A device of the character described comprising a carrier kite having a frame member and a kite string, a glider releasably mounted on said frame member, means for releasing said glider and means for propelling said glider from said carrier kite, said propelling means including an elastic band engaged under tension between the forward end of the carrier kite and the glider, said releasing means comprising a trigger mounted on said frame member and engaging said glider for normally retaining said tension condition, a trigger arm for said trigger and a release kite releasably mounted on said kite string and adapted to contact said trigger arm to release said trigger.

6. A device as claimed in claim 5 wherein said trigger has an aperture for receiving said frame member of said carrier kite, a block downwardly depending from said frame member and passing through said aperture, a lug on said trigger engaging the lower end of said block, the upper transverse portion of said trigger being inclined rearwardly and engaging an inclined shoulder made in the bottom of said glider, whereby when said release kite contacts said trigger arm, said lug of said trigger disengages said block and said transverse portion of said trigger is displaced forwardly on said frame member and takes a for-

5

wardly inclined position to release said glider.

7. A device as claimed in claim 5 wherein the wings of the glider are opposite an aperture made in the carrier kite whereby air will pass through said aperture and be directed against said glider wings to provide lift for said glider.

8. A device as claimed in claim 5 wherein the release kite is a centrally apertured disk, and a string tube is mounted right angularly over said aperture.

9. A device as claimed in claim 5 wherein said release kite comprises an arcuate strut member, a piece of sheet material maintained in curved position by said strut member and an elastic band for attaching said sheet material to said strut member passing through apertures made in said sheet material and attached to the ends of said strut member.

6

10. A device as claimed in claim 6 wherein said upper transverse portion of said trigger has ears engaging the sides of said glider to hold the same against transverse displacement on said carrier kite.

DORIS A. MCKAY NEE MILLIGAN.

References Cited in the file of this patent
UNITED STATES PATENTS

Number	Name	Date
1,116,122	Reiss -----	Nov. 3, 1914
1,914,822	Bryan -----	June 20, 1933
2,203,083	Doerr -----	June 4, 1940
2,464,720	Rose -----	Mar. 15, 1949
2,471,199	Coyne -----	May 24, 1949
2,535,165	Shoemaker -----	Dec. 26, 1950