May 16, 1950 A. J. FREY 2,507,777

KITE

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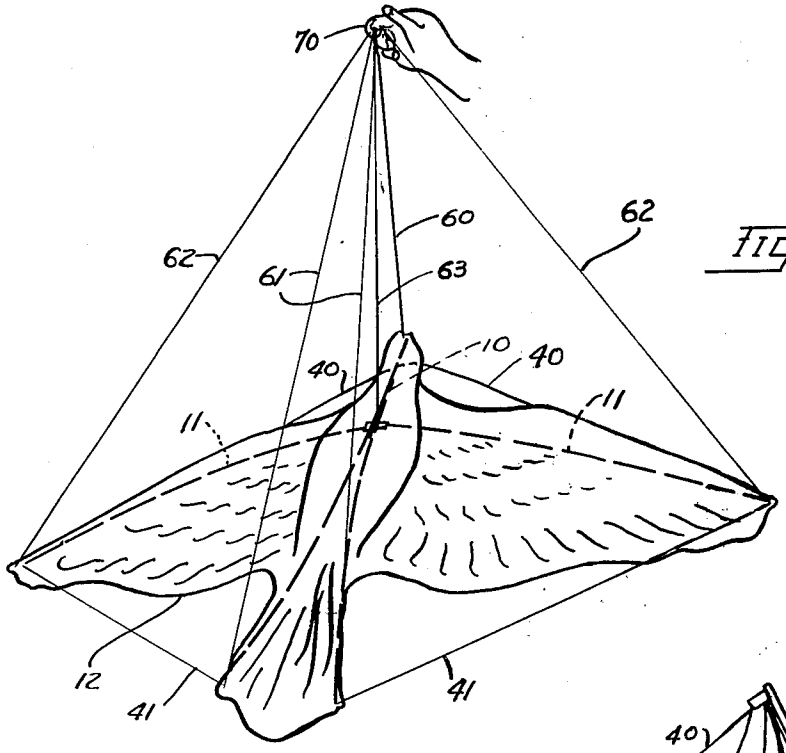


Fig. 1

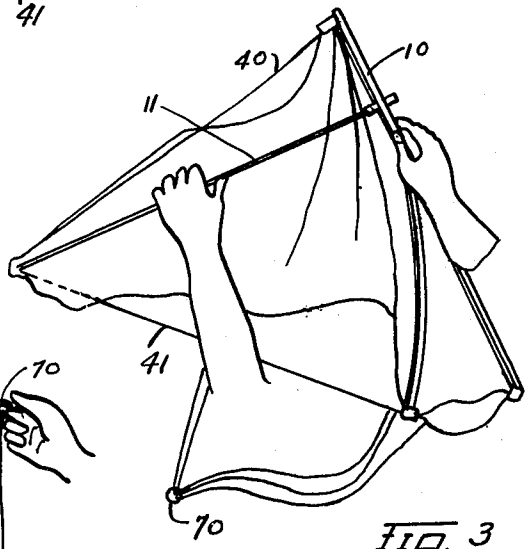


Fig. 3

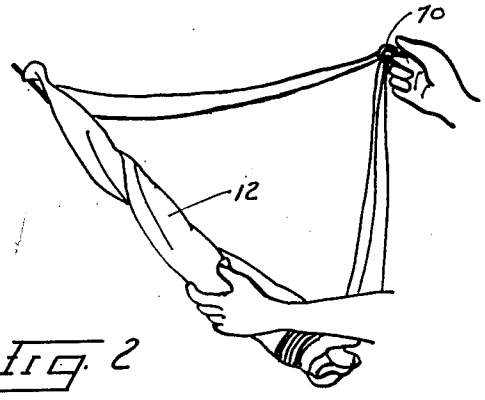


Fig. 2

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KITE

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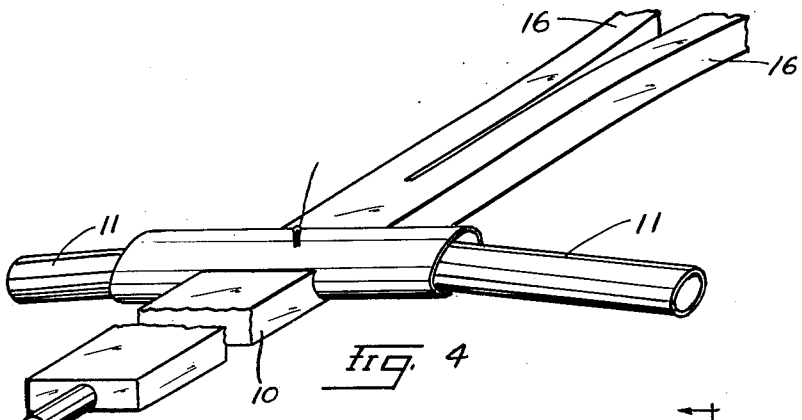


Fig. 4

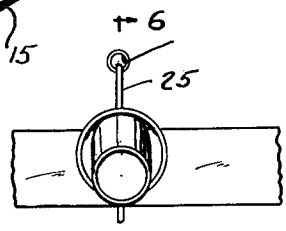


Fig. 5

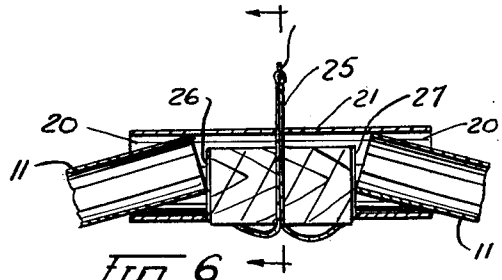


Fig. 6

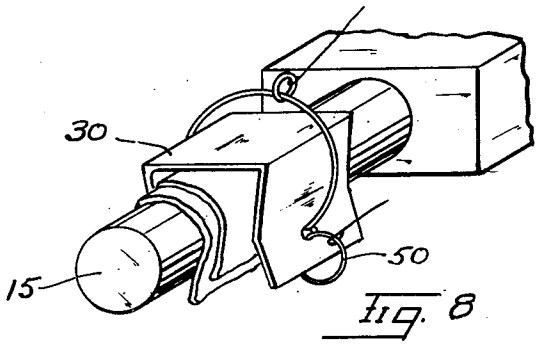


Fig. 8

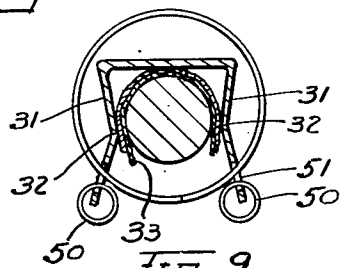


Fig. 9

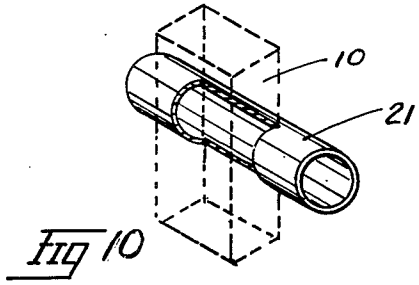


Fig. 10

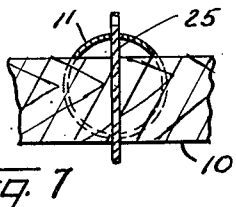


Fig. 7

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Patented May 16, 1950 2,507,777

UNITED STATES PATENT OFFICE

2,507,777

KITE

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Application March 31, 1947, Serial No. 738,326

2 Claims. (Cl. 244—153)

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This invention relates to kites of the type that are adapted to be flown for amusement purposes.

Toy kites heretofore used have been usually made of fragile material which has necessitated careful handling and protection against breakage through tearing and the like. Moreover, such kites have been permanently assembled and have, therefore, been cumbersome and unsuited for handling in large quantities in chain stores and the like.

An object of the present invention is to make a kite which can readily be manufactured in mass production, and which can be folded or rolled up for storage purposes in a tubular container, thereby not only facilitating the distribution and sale to large department and chain stores, but also enabling the user to pack and store it conveniently.

An additional object of the invention is to provide fasteners by means of which the kite may be quickly assembled at the time of production, and by means of which suitable guide and control lines can be quickly and accurately positioned so as to avoid the time consuming element of tying strings to the terminal portions of the stays with the attendant possibility of slipping and the ensuing detriment to the performance of the kite.

The preferred form of the invention is illustrated in the drawings wherein Fig. 1 is a perspective view of an assembled kite embodying the present invention; Fig. 2 is a perspective view showing the kite in closed or rolled position; Fig. 3 shows a step in the assembly of a kite to change it from the position of Fig. 2 to that of Fig. 1; Fig. 4 is a perspective view showing the connection between the mainstay and the cross stays; Fig. 5 is a side view of the portion of the mainstay showing one of the cross stays in end elevation; Fig. 6 is a section taken on a plane indicated by the line 6—6 in Fig. 5; Fig. 7 is a section taken on the plane indicated by the line 7—7 in Fig. 6; Fig. 8 is a perspective view showing the manner of assembling the covering material to the top of the mainstay; Fig. 9 is a section taken on a transverse plane through the fastener construction of Fig. 8, and Fig. 10 is a perspective view showing the fastener for enabling the cross stays to be detachably connected to the mainstay.

In Fig. 1 the kite in assembled position is shown in the form of a bird in flight with wings extending outwardly from the body. The framework comprises a mainstay 10 and cross stays 11 which are adapted to be detachably connected

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at their inner ends to the mainstay. The covering 12 for the kite preferably comprises a film of plastic material which is cut to the bird-like formation and which is fastened to the stays at the terminal portions, such as the head, tail and wing extremities.

In the preferred form, the mainstay comprises an upright member of rectangular cross-sectional shape the upper end of which terminates in a cylindrical formation, as indicated at 15 in Fig. 4, and the lower end of which is divided longitudinally to provide leg portions 16. The normal tension of the mainstay is to hold the portion 16 together, but the kite formation is such as to spread the terminal portions when the kite is assembled.

The cross stays are preferably tubular metallic members, the inner ends of which are adapted to be disposed within sockets 20 in a tube 21 that is affixed to the mainstay. To accomplish such connection, a section of the tube may be cut away, as shown in Fig. 10, so as to make a close fitting engagement with the sides of the mainstay and to grip it frictionally. A cotter pin 25 may anchor the tube to the mainstay. In this way the sides 26 and 27 of the mainstay serve as abutments for the inner ends of the cross stays, as is illustrated for example in Fig. 6. Moreover, the inside diameter of the tube 21 is larger than the outside diameter of the tube 11, wherefore, the cross stays are maintained at the proper dihedral angle when the kite is in flight. I have found that good results are obtainable by using an angle of approximately twenty degrees between the axis of the tube 11 and the axis of the tube 21.

To attach the layer of plastic covering to the framework, I utilize a spring sheet metal fastener 30 which has resilient arms 31 that converge inwardly and then extend outwardly and are adapted to be snapped around the covering material and over the terminal portions of the stays as shown in Figs. 8 and 9. Each spring arm thereby presents a shoulder portion 32 which is spaced from the body a distance greater than the radius of the stay upon which the fastener is mounted. In this way the normal tension of the spring arms operate to grip the plastic material which is folded around the tube. In practice, a strip of adhesive tape 33 is interposed between the stays and the covering material so as to increase the resistance of the tube against slippage on the stay.

In addition to holding the covering material onto the framework, the fasteners 30 serve to

retain the guide strings in proper position. Four such strings are employed, two indicated at 40 as extending from the top of the mainstay to the outer ends of the cross stays and two indicated at 41 as extending from the outer ends of the cross stays to the terminals of the leg portions 16. The length of the strings 40 and 41 are so chosen as to spread the members 16 to the position indicated in Fig. 1, and the strings are permanently secured so as to spread the members 16 to the position indicated in Fig. 1, and the strings are permanently secured so as to effect the same degree of tension to the framework whenever the kite is assembled.

A preferred way of attaching the guide strings to the framework terminals to attach the strings to rings 50 that extend through openings 51, and by making the strings 41 shorter than those indicated at 40, the legs of the mainstay will be bent and will stretch the covering material sufficiently to form the tail portion of the bird. The guide lines 40 and 41 also provide means for attaching the covering material thereto. One form of such attachment is to seal the string to the covering with any suitable cementitious tape.

The harness for the kite comprises a head string 60, two tail strings 61, side strings 62 and a central string 63, all of which preferably extend from rings on the respective fasteners 30 to a collector ring 70 to which the kite flying string is attached. The central string 63 may be attached to the eye of the cotter pin 25 which extends through a small slit in the covering material 11.

Whenever the cross stays are disconnected from the socket member 21, tension is released on the guide strings 40 and 41, whereupon the portions 16 of the mainstay spring together. Thereupon the cross stays can be laid alongside the mainstay and the material can be rolled around the stays for insertion into a tubular container. Reassembly is effected by merely reversing the process, Fig. 2 showing the folded position, and Fig. 3 illustrating the step of inserting one of the cross stays into the socket, after which the other stay is inserted in its corresponding socket. The kite is then ready for flying.

I claim:

1. A kite having a mainstay and having a transversely extending socket member carried thereby, cross stays adapted for detachable insertion within said socket, a layer of plastic material covering the framework, snap fastening means extending around the covering material and attaching it to the terminal portions of the framework, said fasteners having openings therein and guide strings attached to said opening.

2. A kite having a mainstay and cross stays, means for detachably connecting the cross stays to the mainstay, said means including a tubular socket member extending continuously across the mainstay and having a notch embracing the mainstay, a covering of flexible material for the framework and a pin passing through the covering and the socket member and mainstay and provided with an eye for attachment of a string.

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