Nov. 2, 1954 C. E. BEACHY 2,693,329

KITE FRAME CONSTRUCTION

Filed Nov. 17, 1952

Fig. 1

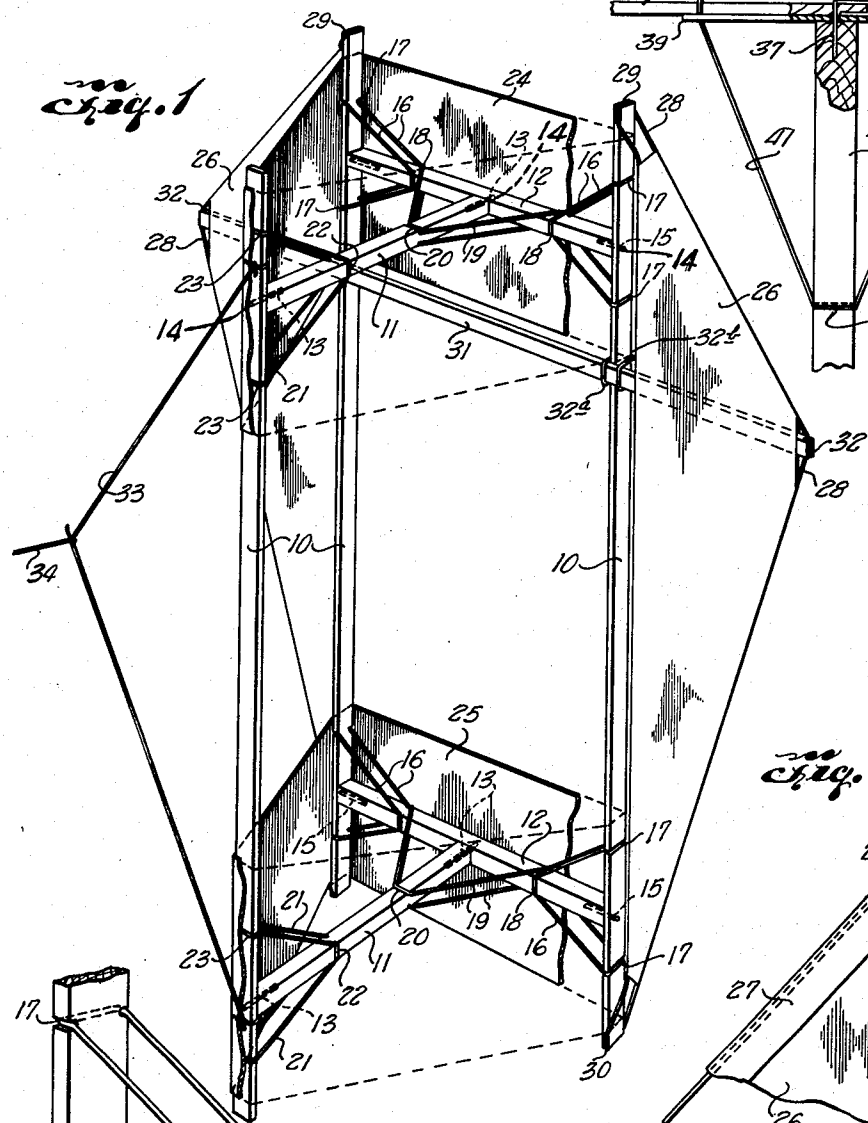
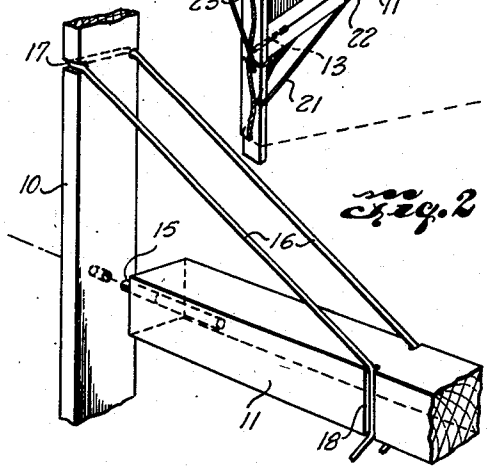


Fig. 4

Fig. 3

Fig. 2



CHARLES E. BEACHY
INVENTOR.

BY

ATTORNEY

United States Patent Office 2,693,329 Patented Nov. 2, 1954

2,693,329

KITE FRAME CONSTRUCTION

Charles E. Beachy, Abilene, Tex.

Application November 17, 1952, Serial No. 320,887

2 Claims. (Cl. 244—153)

This invention relates to kites and it has particular reference to certain improvements in collapsible kite frames.

The principal object of the invention is to provide a kite frame made up of a plurality of parallel, co-extensive frame members held detachably in assembled relationship by interconnecting ribs which are primarily joined to each other and to the parallel members by pins in certain of the members which are retained in holes of companion members, the pins being held against displacement from their respective holes by elastic bands so related to the interconnecting members at their joints to resist relative displacement thereof. The elastic bands are effective to permit a certain amount of movement between the interconnecting members to relieve strain and absorb shock which would otherwise tend to cause breakage of the members if they were not permitted to yield to violent strains and severe shocks.

Another object of the invention is to provide a kite frame which may be readily assembled and disassembled and, by virtue of the novel means by which the elements of the frame are interconnected for yielding displacement, the frame may be subjected to more abuse than it would otherwise survive if the parts were not resiliently joined together, hence the kite will have a longer life but will be as economical to construct as other less rugged kite construction.

With the foregoing objects in view, the invention has further reference to certain features of accomplishment which will become apparent as the description proceeds, taken in connection with the accompanying drawing wherein:

Figure 1 is a perspective view with part of the plane members broken away to better reveal the frame construction.

Figure 2 is a fragmentary perspective view showing the resilient connection between one of the parallel frame members and an interconnecting member.

Figure 3 is a fragmentary detailed view of one of the wings, and

Figure 4 is a fragmentary view, partly in section, showing a modified example of the resilient connection between parts of the kite frame.

Continuing with a more detailed description of the drawing, reference numeral **10** denotes each of the three parallel frame members or booms which are of equal length. These members may be of any suitable material but are preferably made of wood and it is obvious that there may be three of these members, as shown, or four of such members may be used to form the so-called box kite. Spaced from the upper and lower ends of the assembled frame members **10** are brace members or sticks **11** and **12** forming a substantially T-shaped interconnecting assembly for the said frame members **10**. Each of the two brace members **11** has a pin **13** embedded in each end thereof and extending a short distance from the end. The pin in one end of each member **11** is adapted to enter a hole **14** in the foremost frame member **10** while the pin in the opposite end of each of the members **11** is adapted to enter a hole midway between the ends of one of the companion brace members **12**. Each of the two brace members **12** has a pin **15** embedded in its end and extends beyond the end into a hole in one of the rear frame members **10**. The interconnecting assemblies consisting of the brace members **11** and **12** adjacent the top and bottom of the kite frame are identical to each other and their manner of

attachment through the medium of the pins **15** and holes **14** are the same in each assembly, hence the same reference numerals are used for both the top and bottom assemblies.

In order to prevent displacement of the pins **13** and **15** of the members **11** and **12** of each assembly from their respective holes, rubber bands **16** are looped in notches **17** made in the rear frame members **10** and spaced on each side of the connection between the brace members **12** and the said frame members **10** at both the top and bottom of the frame. The rubber bands **16** are then engaged in grooves or slots **18** in the brace members **12** and spaced inwardly from each end of each brace member. The rubber bands **16** are secured in the notches or slots **17** and **18** under tension, hence it is a tendency of the rubber bands to urge the rear frame members **10** toward the ends of the upper and lower brace members **12**. These bands are effective also to permit limited movement between the frame members **10** and brace members **12** and to relieve shock imposed on the frame as a whole to prevent fracture thereof at the joints.

The notches **18** adjacent the ends of brace members **12** also retain rubber bands **19**, the latter being brought under tension and engaged in notches **20** in the upper and lower surfaces of brace members **11** at a point spaced from the ends thereof which engage the midsections of companion brace members **12**. Tension on the rubber bands **19** cause the brace members **11** and **12** to be urged into close relationship and held in such relationship against forces tending to separate them.

In a manner similar to the foregoing, rubber bands **21** are engaged in notches or slots **22** in the sides of brace members **11** at a point spaced inwardly of the end of said member **11** which engages the foremost frame member **10**. The bands **21** are also engaged in notches or slots **23** in the foremost frame member **10** at points spaced above and below the point of engagement between the brace members **11** and the said frame members **10**, at both the top and bottom of the kite frame. Thus, the frame members and brace members are held securely together, subject to limited displacement as permitted by the resilient bands.

Embracing the frame members **10** at the top and bottom end concealing the interconnecting assembly are planes **24** and **25**. These planes may be made of any material but are preferably constructed from pliable plastic sheet material to allow for a small degree of resiliency.

On each side of the kite frame is a wing **26** consisting of paper or other suitable material whose edges **27** are overlapped on twine or cord **28** and secured by gluing or other means. The cord **28** of each wing is engaged in notches **29** in the upper ends of the rearmost frame members **10** and in notches **30** in the lower ends of these frame members. The chords **28** of the wings **26** are brought under tension by a transverse frame member **31**, the cord **28** of each wing lying in a notch **32** in each end of the transverse frame member **31**. The transverse frame member **31** is attached to the rearmost frame members **10** by small rubber bands **32***a*, the bands being looped in notches **32***b* in the said frame members **10** and over the said transverse frame member **31**, in the manner shown in Figure 1.

A flying bridle **33** has one end attached adjacent the upper end of the foremost frame member **10** and its opposite end attached to the same frame member adjacent its lower end. A line **34** is attached to the bridle **33** for flying the kite.

In Figure 4 is shown a modified example of the resilient connection between the socalled brace members and the parallel frame members of the kite. In this form of the invention, a parallel frame member is identified by reference numeral **35** and has pressed therein a wire staple **36**, one leg of which is clenched on the inner face of the frame member while the companion leg **37** of the staple extends perpendicularly to the frame member. A strip of relatively thin but stiff material **38**, such as fiber, lies flush against and in parallelism with the inner surface of the frame member **35** and has notched ends **39**. A brace member **40** abuts the reinforcing strip **38** and has an axial hole in its end to receive the leg **37** of the

staple **36**. An endless rubber band **41** embraces the frame member **35** at points spaced from each side of the staple **36** and the leads of the rubber band are brought together and pressed into the notch at each end of the reinforcing strip **38**, thence, the leads of the band continue downwardly and are engaged in notches **42** in each side of the brace member **40**. In this manner, the points in the frame members **35** vulnerable to fracture under certain conditions are reinforced by the strips **38** without sacrificing any of the resiliency afforded by the connections.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed to fall within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. In a kite frame construction, a plurality of parallel frame members of equal lengths spaced apart in triangular relationship, each of said frame members having a pair of spaced apart lateral slots adjacent each of its ends, a substantially T-shaped interconnecting assembly for said frame members adjacent their upper and lower ends, each said assembly comprising a first brace member having opposed lateral slots spaced from each end thereof, a pin in each end of said first brace member entering holes in two of said frame members midway between the slots of each pair of slots therein, and a second brace member having opposed lateral slots spaced from each end thereof, a pin in each end of said second brace member, one pin thereof entering a hole in the midsection of said first brace member midway between the slots therein, the other of said pins entering a hole in the remainder of said frame members midway between the slots of each pair of slots therein, and an elastic band means engaged in each pair of slots of each of said frame members and the sdots of a brace member at its point of connection with said frame member to yieldingly hold said pins against dislocation with respect to said holes.

2. In a kite frame, a series of parallel frame members of equal lengths, a pair of correlated brace members detachably connected to said frame members at points spaced from each end of said frame members, said brace members each comprising a pair of sticks disposed in T-shape, each having notched sides adjacent each end, a pin protruding from each end of each stick adapted to enter a hole spaced from the end of each frame member, said frame members each having notches therein on each side of said hole, a rubber band engaged in the notches in each of said frame members, and held under tension in the notches in said brace member to urge said brace member into yielding juxtaposition with said frame member.

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