From... The Country Gentleman
Copied in early '30s

A TETRAHEDRAL KITE

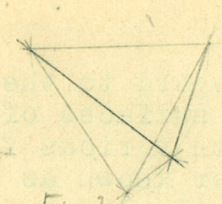

Fig. 1

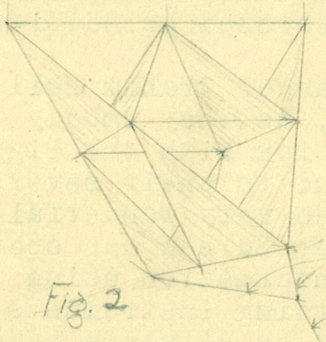

Fig. 2

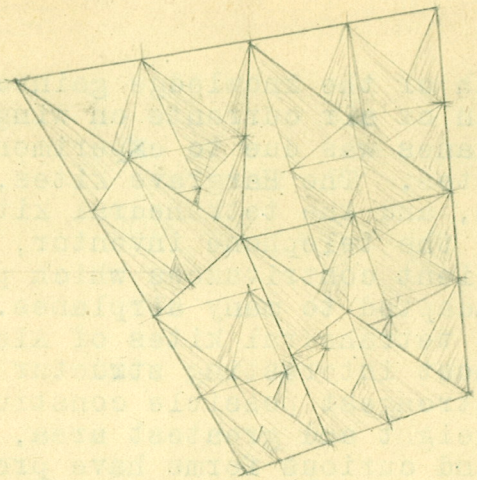

Fig. 3

In Fig. 1 is shown the frame work of one complete cell. This is made of six pieces of 1/8-inch round dowels, sixteen inches long. Dowels come three feet long in various sizes, ranging from 1/8 of an inch in diameter upward, and are sold by most hardware stores. A small notch is cut with a knife around the dowels about 3/8 of an inch in from each end. Using strong linen thread and glue, bind three of these pieces together to form a triangle, wrapping the thread into the notches, so it will hold without slipping off the ends. There will be about one-quarter of an inch of the dowels projecting. This is done so another cell can be readily fastened to the first. At each of the corners of the triangle fasten the ends of the three remaining dowels and then finally bind the other ends of these last three together. The result will be a triangular-shaped frame having four sides. Thus the term tetrahedral.

Paper can be used to cover the two slanting sides of the frame, but light-weight cloth or silk is the best, as this will give without tearing. It is glued or sewed on the outside of the frame, turning the edges around the dowels.

For ordinary flying purposes a kite having four cells, as shown in Fig. 2, is all that is necessary. Later on, if you desire to make a larger kite, twelve extra cells should be added, which will give the kite the appearance of Fig. 3.

The bridle is attached to the front and the rear of the lower cells, as shown, and the kite string at a point to allow the kite to assume a slight backward tilt in flight.

Much of the knowledge gained in regard to the action of air currents on wings and surfaces of airplanes was due to experiments with various forms of kites. The Hargrave kites, better known as box kites, and the tetrahedral kites of Alexander Graham Bell, the telephone inventor, were all remarkably efficient contrivances which possessed principles now adapted to many airplanes.

The tetrahedral kites of Alexander Graham Bell are most interesting structures, as they embody the strongest possible construction with the lightest weight and greatest area, and in their several odd and curious forms have proven very wonderful kites. The United States Weather Bureau has secured a great deal of very valuable information using these kites to carry their recording instruments. About 1908, Professor Bell built an airplane using several thousand of these cells which, strange as it may seem, flew very successfully.

I have made a number of these kites, which have flown beautifully, and as they are very seldom seen nowadays, I am going to tell you how simple they are to make. The shape of the triangular cells makes it possible to build a small kite and then without remodeling or altering the kite other cells--as many as you want--can be added for a larger kite.

1/8 Doweling,,

12 Cells = 432 sq. in paper
288 " of Frame = 648 gr. = 1.48 gr/sq. in

16 "Cells = 780 sq. in paper
384 in. of Frame (864 gr.) = 1.1 gr./sq. in