The Step Ladder Kite

A variation of Joseph Lecornu's orginal "Etagere" design Invented in 1898

After the article in the January 2001 of the Kite Society magazine regarding Lecornu and his Waffle Kite, I have set out a plan on a variation of his Shelf or Ladder kite, which was also mentioned.

Lecornu's original design comprised of three rectangular cells stacked. (An Italian kite designer Andreas Casolbani has reproduced Lerconu's original "Etagere" Kite which you can find on the Internet under Historic Kites).

This configuration has four cells stacked and is made much smaller than the original and is a good size for the average single line kite flyer. See picture above.

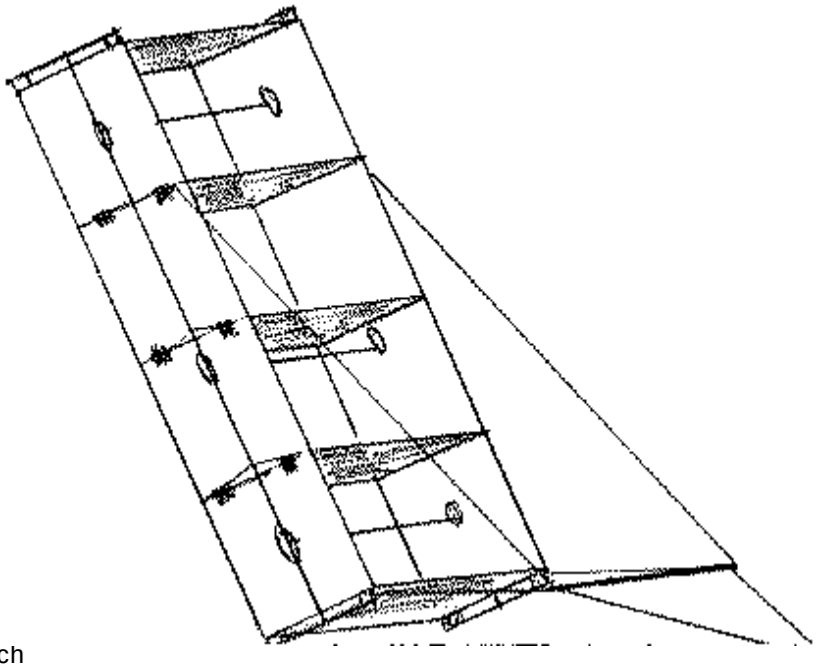
The kite is made from ripstop nylon , 6mm ramin dowel and cane (I use the green lengths obtained from gardening centres).

The kite measures 3 foot high by 18 inches wide and a depth of 8 inches, but can be made to a larger size if desired.

Making the Kite

1. Cut 8 pieces of ripstop measuring 8 inches by 9 inches, piece "A"(Fig 1) and allow ¼ inch for hemming on the 9 inch sides and ¾ of an inch on the 8 inch sides. Then cut 5 pieces measuring 8 inches by 18 inches, piece B (fig 2) and as above allow ¼ of an inch for hemming on the 18 inch sides and ¾ of an inch on the 8 inch side. The ¾ allowance also incorporates a ¼ inch sewing point, this will be to make a ½ inch pocket for the longerons.
2. Hem all sides, I tend to use a zig zag stitch to stop fraying or instead of hemming, the edges could be edge bound.
3. On four of the "A" pieces allow for a hole the centre of the piece to take a cross strut. I tend to cut a slit then hem, but you can use an alternative method of reinforced tape stuck to ripstop and then cut using a compass cutter. (two of the "A" pieces you will need to make anoth hole, which will be positioned 1 inch from the to (see picture to the left).
4. Begin by joining pieces "A" and "B" along t 8inch side where the ¾ excess has been mark and sew along the ¼ inch line from the end maki sure that the outside parts of the sail are join together. Then turn over and sew along other li to form the ½ inch pocket (see Fig 3). Repeat the other end of the "B" piece by joining anoth "A" piece.
5. Next another "B" piece and another "A" pie are sewn so that the "B" side is sandwiched b tween the two "A" pieces. Again this is sewn alo the ¾ inch pocket allowance. You will find th when sewing the pocket on the end of each " piece the sail will need to be turned right side out.
6. When all pieces have been sewn together, c out 12 pieces of dacron tape measuring 1½ x 1 inch and sew these on to the pockets on the 3 centre plains, see fig 5. At the four corners I have used two pieces of ripstop on each corner, which are 3 inches long by 1 ½ inches wide. These tabs will overhang from the pocket to accept an 8 inch longeron.
7. Next cut lengths of cane which will be just under 8 inches long and insert these into the pockets and sew either end of pockets.
8. Next cut four lengths of dowel with small holes drilled at ¾ of an inch from either end and then before inserting and sewing into the ripstop tabs cut 4 pieces of reinforced tubing about 1 inch long and pierced at one end to then slide over the 8 inch length of dowel see fig 5b.
9. On the pocket with Dacron tape sewn on pierce and insert nylon or Dacron line with a button or slider for tensioning see Fig 5a.
10. Next cut lengths of dowel for the struts and also lengths of plastic tube for the joints. The two longest lengths on the side pass through the tensioning cords. And for greater collapsibility these can be cut and ferruled. See Fig 4 for the front view of the kite.
11. The final part is to bridle the kite, which is of the compound type and also has a spacebar see Figs 6a & 6b for top and side views and also Fig 7 for the whole kite. When flying this kite a number of adjustments may be necessary to the position of the space bar and if the kite tends to fly to one side, adjust the towing ring. In steady winds this kite flies with beautiful stability but does become a little erratic in unstable winds.

Mark Farnborough



Full View of Kite

The Step Ladder Kite

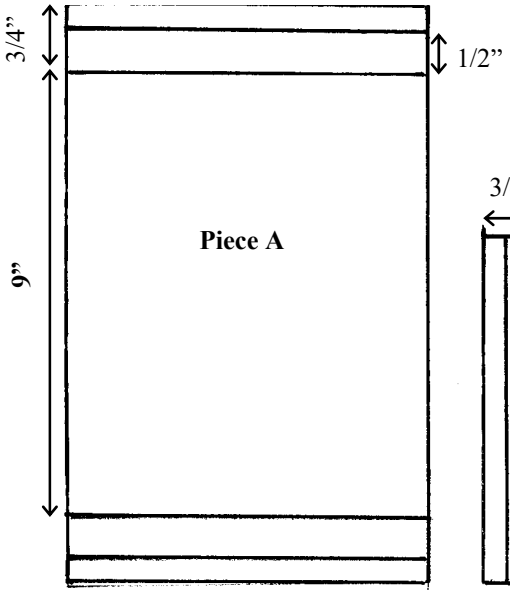


Fig 1.

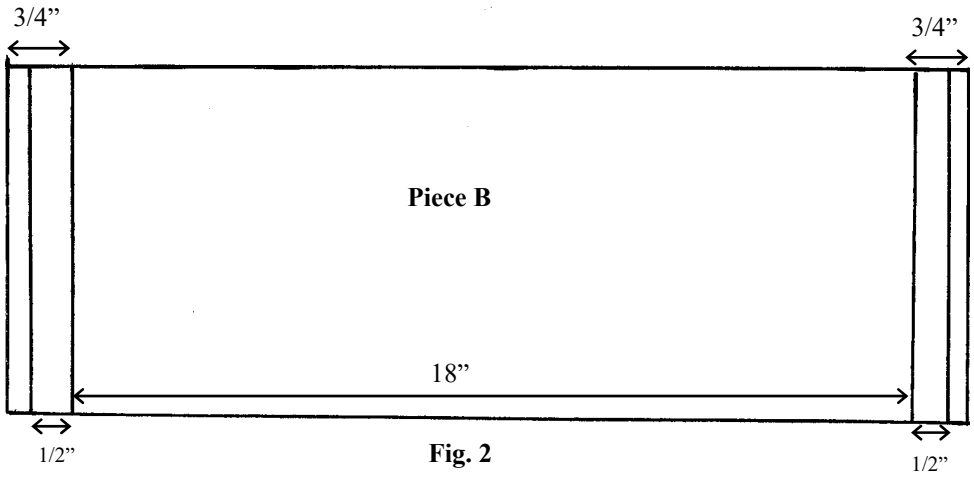


Fig. 2

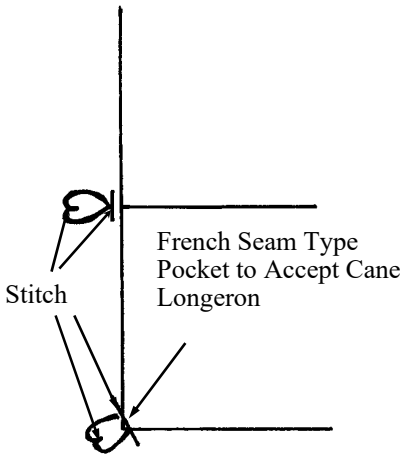


Fig. 3

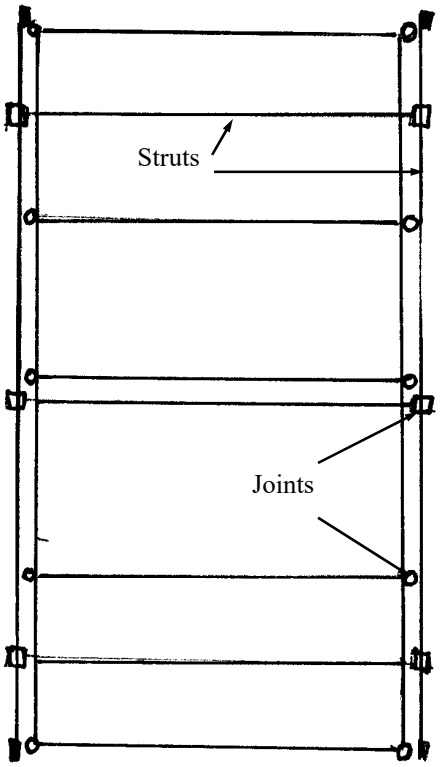
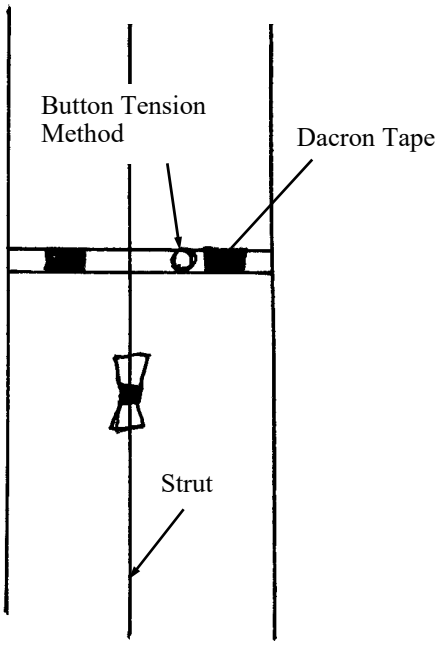


Fig 4 (Front Section)

Fig 5a (Side Section)



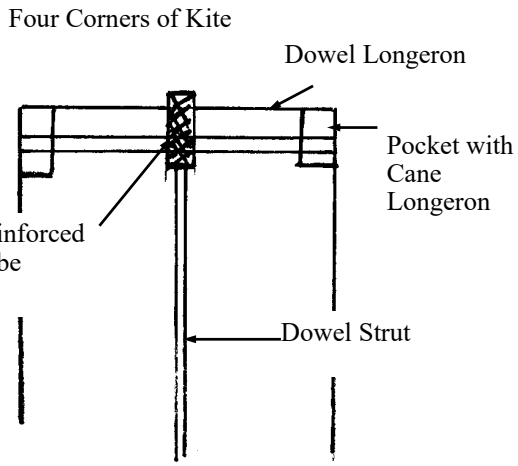


Fig 5b

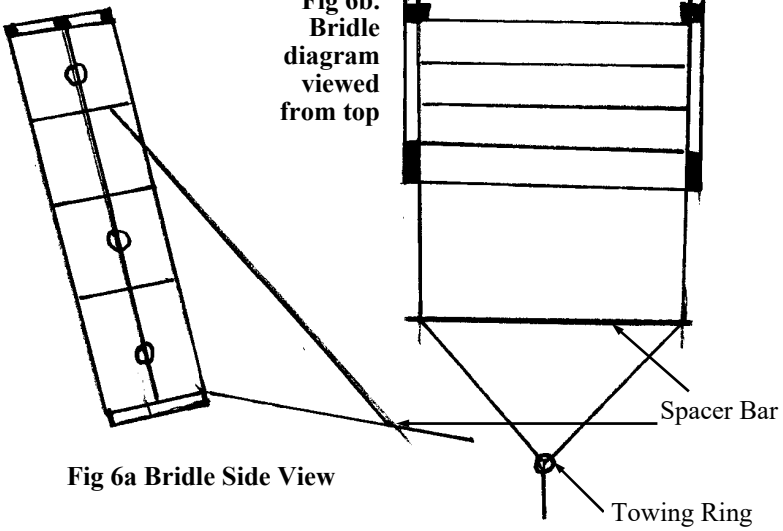


Fig 6a Bridle Side View

Fig 6b. Bridle diagram viewed from top