J. T. McLAUGHLIN.

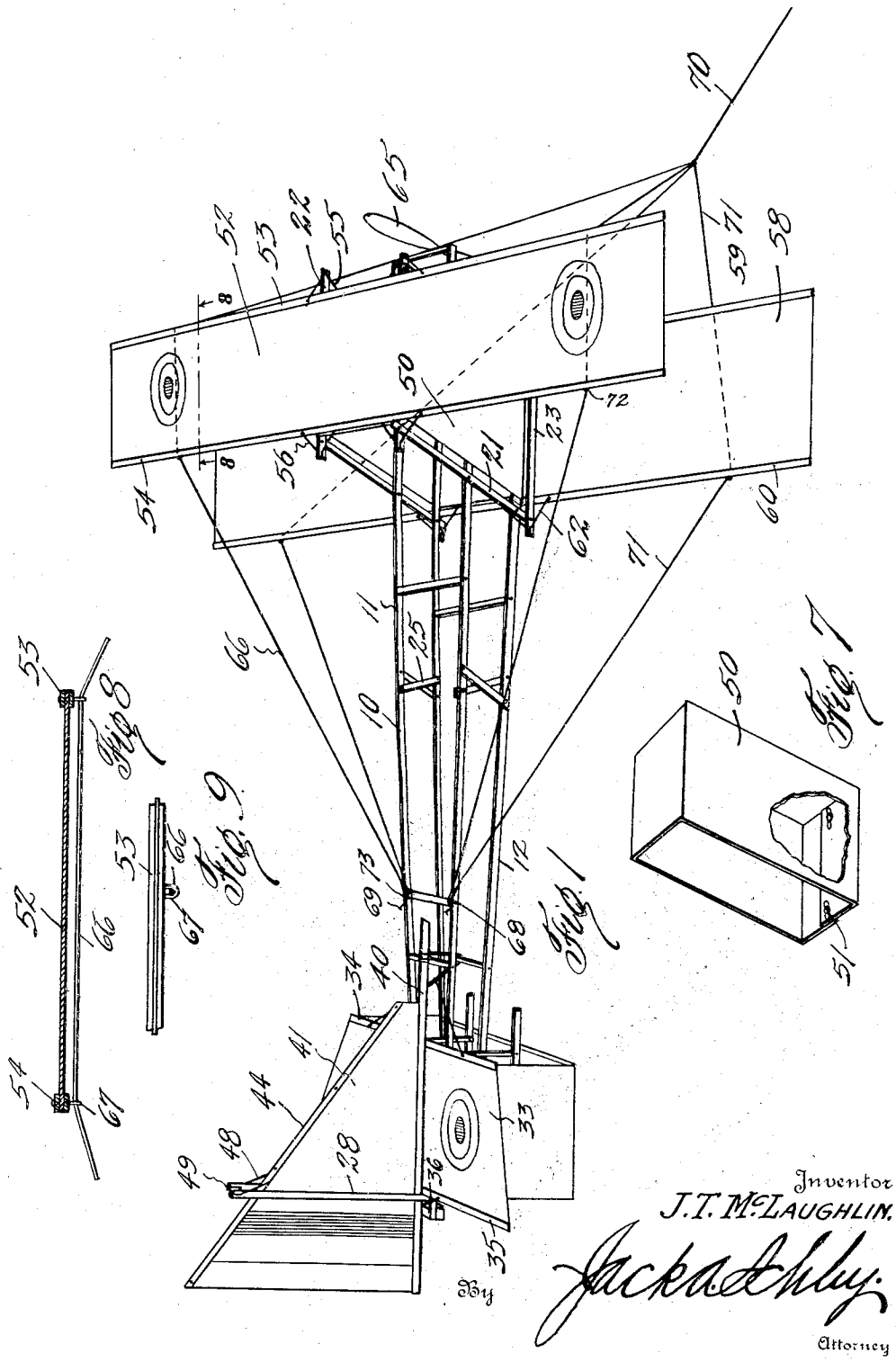
AEROPLANE KITE.

APPLICATION FILED MAR. 22, 1920.

1,356,381.

Patented Oct. 19, 1920.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

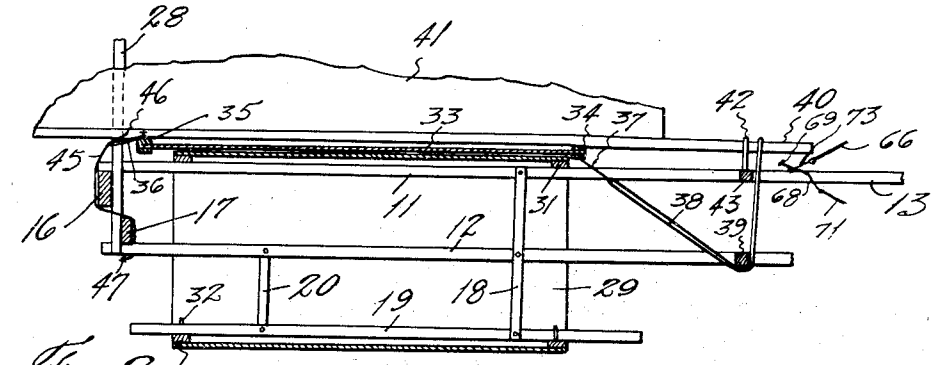


Fig. 2

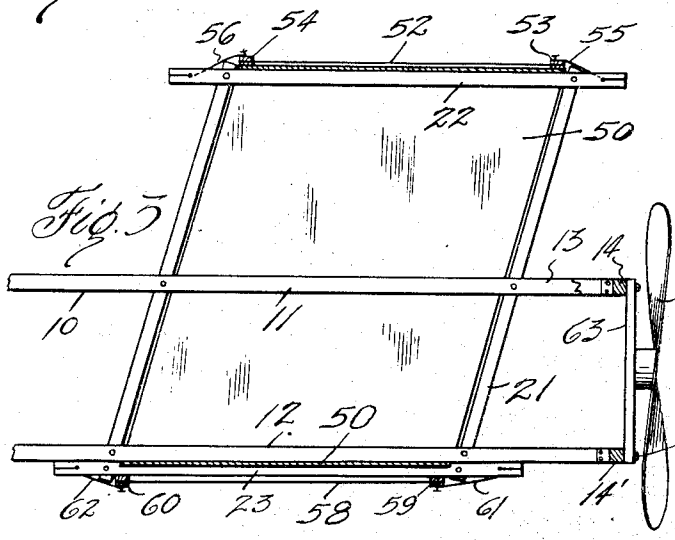


Fig. 3

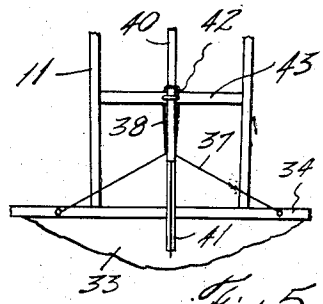


Fig. 5

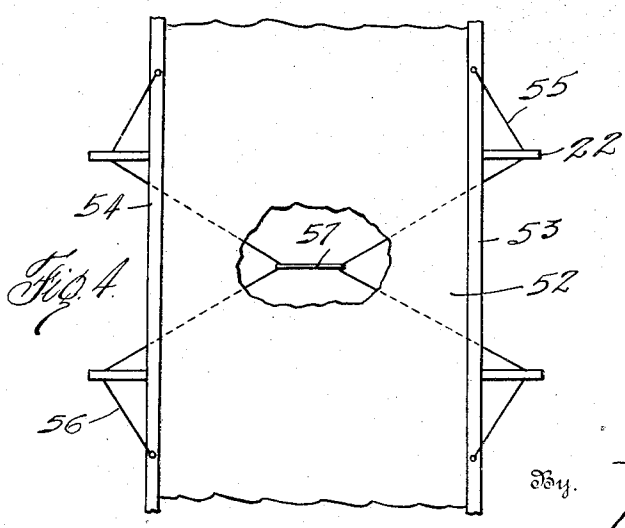


Fig. 4

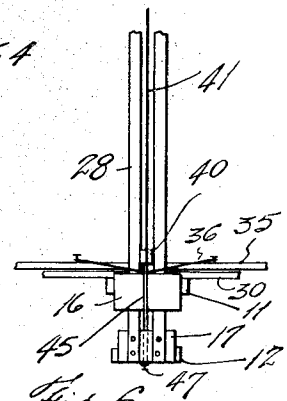


Fig. 6.

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3 SHEETS—SHEET 3.

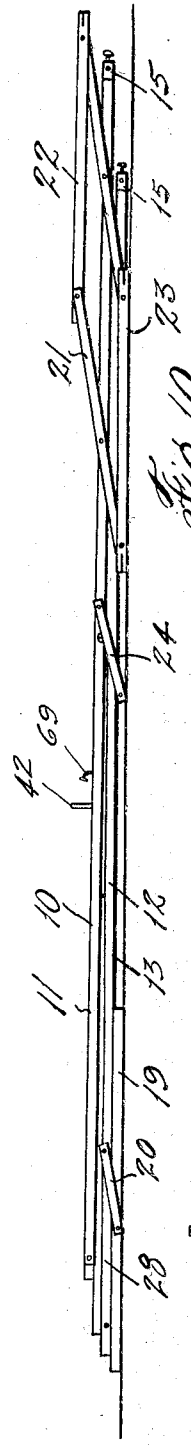


Fig. 10

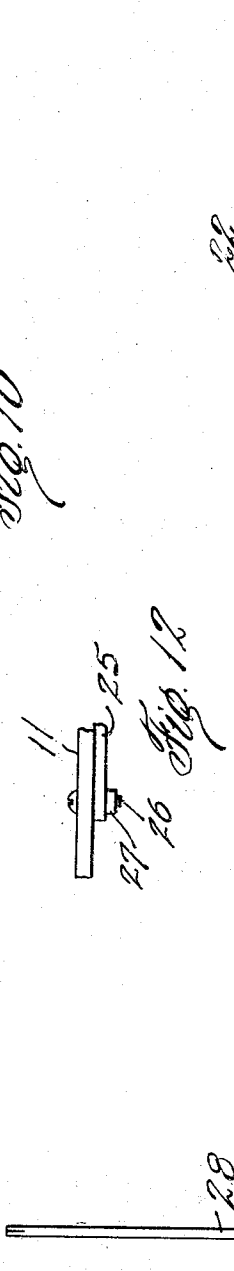


Fig. 12

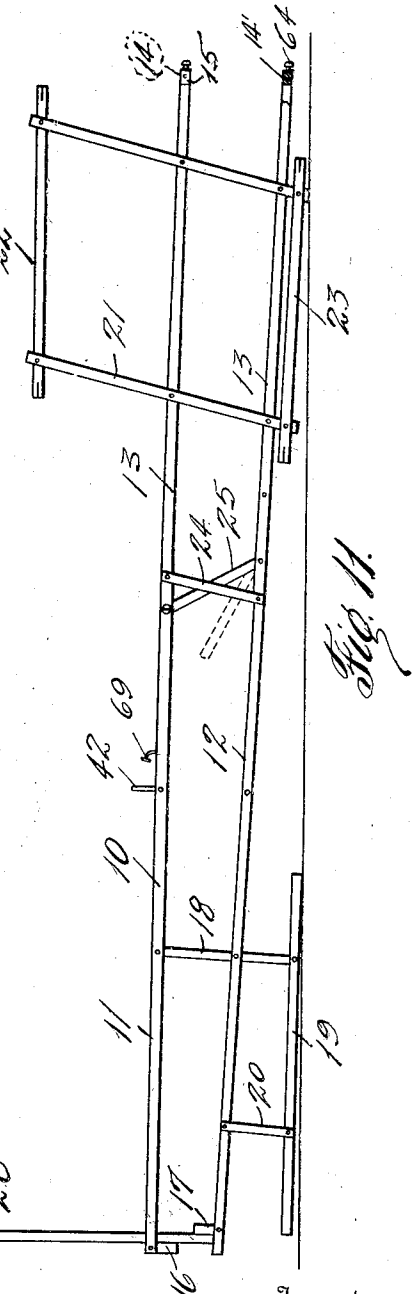


Fig. 11.

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UNITED STATES PATENT OFFICE.

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AEROPLANE-KITE.

1,356,381. Specification of Letters Patent. Patented Oct. 19, 1920.

Application filed March 22, 1920. Serial No. 367,737.

To all whom it may concern:

Be it known that I, JAMES T. McLAUGHLIN, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Aeroplane-Kites, of which the following is a specification.

This invention relates to new and useful improvements in aeroplane kites.

The aim of the invention is to provide a toy kite in the nature of an aeroplane and to arrange the same so that it may be readily dismantled and folded for shipping and easily assembled and placed in position for flying without the use of numerous fastenings and detachable parts, thereby making for simplicity and practicability. One of the features of the invention is to provide wind tunnels between the planes and at the end of the fuselage and to arrange these in a novel manner. Another feature resides in the bridle and rigging whereby the kite may be properly sustained in the air.

In carrying out the invention a fuselage frame is provided and arranged to be compactly folded and having a simple fastening for locking it in open position. A novel rudder and tail arrangement in connection with a rear wind tunnel fitting on the rear end of the fuselage is provided, together with a unique means of fastening these parts in position. Detachable planes are provided on the front end of the fuselage and fastened in a simple manner. A wind tunnel is provided between the planes and arranged to be fastened in a simple manner. It is pointed out that numerous nuts, bolts and clips are not used and the kite may be readily assembled by a child. Other details will be hereinafter pointed out.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which an example of the invention is shown, and wherein:

Figure 1 is a perspective view showing the kite in flying position,

Fig. 2 is a longitudinal sectional detail of the rear wind tunnel and component parts,

Fig. 3 is a longitudinal sectional view of the forward portion of the aeroplane,

Fig. 4 is a detail in plan showing one of the planes,

Fig. 5 is a detail in plan showing the rudder fastening means,

Fig. 6 is a detail of the rear end fastening for the tail and rudder planes,

Fig. 7 is a perspective view of the forward wind tunnel,

Fig. 8 is a cross-sectional detail on the line 8—8 of the Fig. 1,

Fig. 9 is a front elevation of the same,

Fig. 10 is a view of the fuselage frame folded,

Fig. 11 is a view of the fuselage frame unfolded and in position for use, and

Fig. 12 is a detail of one of the locking devices for the frame.

In the drawings the numeral 10 designates a fuselage frame which comprises a longitudinal upper member 11 and a lower member 12 underlying the upper member. As is shown best in Figs. 1 and 11, the members 11 and 12 are formed of side bars 13, the bars 13 of the upper member being connected at their front end by a cross bar 14, while the bars 13 of the lower member are connected at their front ends by a cross bar 14′. The bars 14 and 14′ and the bars 13 are connected together by clips 15. The rear ends of the bars 13 of the upper member are pivoted to a block 16 while the rear end of the bars 13 of the lower member are pivoted to a block 17, said blocks being arranged between the bars of each member and the blocks 17 slightly in advance of the blocks 16. Uprights 18 pivotally connect the upper and lower members and project below the same. The lower ends of the uprights 18 are pivoted to longitudinal stretcher strips 19 which are also pivoted to the sides of the lower member 12 by links 20.

Near their forward ends the members are pivoted to stays 21 which project some distance above the upper member 11 and have their upper ends pivoted to top bars 22. The lower ends of the stays project below the lower member 12 and are pivoted to bottom bars 23. Links 24 connect the upper and lower members 11 and 12 at the central portion of the frame. Locking bars 25 are pivoted to the bars 13 of the lower member and are adapted to engage over studs 26 (see Fig. 12) projecting inwardly from the side bars of the upper member and receiving nuts 27 whereby the locking bars are fastened. It will be seen that by disengaging the locking bars from the studs the frame 10 may be collapsed as is shown in Fig. 10 in which the upper member 11 is swung

down onto the lower member 12. The parts may be pivoted together by small nails having their ends upset or by means of rivets. It will be seen that by swinging the member 11 upward and fastening the locking bars 25 on the studs 26 the frame is in position.

A rudder support 28 is fastened between and to the blocks 16 and 17 and this may be utilized in swinging the members 11 and 12 together and away from each other. It will be seen that the frame which forms the fuselage is readily put into position and the operation is simple, only two nuts being required to fasten the locking bar. A rear wind tunnel 29 is formed of paper, cloth or other suitable material and is rectangular in cross section. This tunnel has transverse bottom bars 30 and transverse top bars 31. Before the frame is extended or unfolded the tunnel is slipped over the rear end and moved forward so that the support 28 can be swung upward, the tunnel then being pushed rearward so that the strip 19 project from its front and rear end as is best shown in Fig. 2. The bar 30 carries upright pins 32 which engage on opposite sides of the stretcher strip 19, and prevents lateral displacement of the tunnel. When the support 28 is swung to an upright position the stretcher strips 19 will be carried downward and the tunnel will thus be tightly held on the said strips 19 and the upper member 11.

A horizontal tail frame 33 has a front cross strip 34 and a rear cross strip 35, the latter being longer so as to conform to the shape of the plane. A cord loop 36 is provided at the center of the strip 35 and is engaged over the support 28. A second cord loop 37 is provided on the front strip 34. A rubber band 38 attached to the cord loop 37 is carried downwardly and forwardly and passed under a cross bar 39 in the member 12 and then upward and engaged over the forward end of the bottom strip 40 of a vertical rudder plane 41. The rudder plane has a general triangular shape and its bottom strip 40 projects forward through a staple 42 extending upward from a cross bar 43 fastened in the upper member 11. The rudder plane has an inclined top strip 44. The support 28 is split vertically and the rudder plane is slipped down between the split portions of said support. A cord loop 45 fastened to the bottom strip 40 of the rudder plane by means of a cross pin 46 in front of the support 28, passes through the said support and down the rear side of the block 16 and then forward between the blocks and through the support, then down in front of the block 17 to a stud 47 on the underside of the block 17 to which it is fastened as is shown in Fig. 2, and also in Fig. 6. This fastens the rudder plane and holds down the tail plane. A cord loop 48 fastened on the inclined strip 44 is engaged in notches 49 in the upper ends of the support 28 and is of such length as to require the split portions of the support to be pressed together so that the loop will fit in the notches. In this way the rudder plane is securely fastened in position. The parts are assembled in the order in which they have been described.

A strip of paper or other flexible material is employed to form a forward wind tunnel 50. The strip is arranged to be disposed between the stays 21 with its upper portion supported on the bars 22. The end of the strips are fastened under the bars 13 of the lower member 12 and overlap as is shown in Fig. 7. Any suitable means as paper fasteners 51 may be used for fastening the ends of the strip together. An upper plane 52 has a front strip 53 and a rear strip 54. A front cord loop 55 is attached to the front strip and a rear cord loop 56 is attached to the rear strip. These loops are connected by a rubber band 57 as is shown in Fig. 4. The bars 22 project beyond the strips 53 and 54 and are notched. The cord loops 55 and 56 are engaged in these notches as is clearly shown in Fig. 4, the rubber band taking up the slack and holding the upper plane in position on the supports 22.

A lower plane 58 has a front strip 59 and a rear strip 60 and front loops 61 and rear loops 62 which are connected by a rubber band like the upper loops and engaged in notches in the ends of the bars 23, the lower plane being fastened to the underside of said bars. It will be seen that the wind tunnel 50 is confined between the upper and lower planes and that the stays 21 are given a forward pitch so as to simulate an aeroplane. A vertical strip 63 is fastened to studs or small screws 64 carried at the center of the cross bars 14 and 14′. A propeller 65 is mounted on the strip 63.

A bridle is provided for flying the kite and consists of an upper rigging 66 which passes through staples 67 depending from the strips 53 and 54 near each end of the top plane 52. This rigging has loops 68 engaging over pins 69 projecting upward from the top member 11 of the fuselage just in front of the rudder. The rigging 66 is carried downward and united with the flying string 70. An under-rigging 71 extends from the string and passes under the lower plane 58 through staples 72 near each end thereof and also has loops 73 engaging over the pins 69. It will be noticed that the staples 72 are attached to the rear strip 62 only and the lower rigging 71 is not attached to the front strip 61 of the lower plane 58. The rigging thus extends downward from the kite at an angle and is attached to the string 70 at a point below the plane so as to properly hold the kite in the wind and thus sustain the same. It will be

noticed that the rubber band 57 between the loops holding the upper plane 52 will yield and thus a downward pull on the rigging 66 has a tendency to draw the strips 53 and 54 together thus flexing the upper plane and tending to sustain the kite from falling. It is pointed out that all of the planes may be made of paper, cloth or any other suitable material and the whole device is to be of light construction as in usual with kites.

By removing the loops 68 and 73 from the pin 69 and then disengaging the cord loops from the notches at the end of the bars 22 and 23, the upper plane 52 and the lower plane 58 may be easily removed. By disengaging the fastening 51 the tunnel 50 may be taken off and by loosening the fastening 64 the propeller 65 may be removed. To remove the rudder 41 the loop 49 is disengaged and the rubber band 38 slipped off of the part 40. The lock 45 is disengaged from the pin 47. When this has been done the rudder may be pulled upward from the support 28. The loosening of the rubber band 38 frees the front end of the tail frame 33 and the latter may be removed by lifting upward so as to withdraw its loop 36 from the upright 28. The rear wind tunnel 29 is loosened by tilting the support 28 forward so that the tunnel may be slid forward on the fuselage far enough to permit the support 28 to be swung downward over the member 11. The wind tunnel may then be slid rearwardly and removed from the fuselage. However, before the support 28 can be swung downward the locking bars 25 must be loosened and swung downward so as to permit the fuselage to collapse. After the wind tunnel has been removed the fuselage frame 10 is fully collapsed as shown in Fig. 10. The whole device may be neatly packed for transportation.

What I claim, is:

1. In an aeroplane kite, a collapsible fuselage frame, a pair of forward planes detachably secured to the frame, a tail frame detachably secured to the frame, a detachable rudder carried by the frame, and a wind tunnel carried by the frame adjacent the tail plane.

2. In an aeroplane kite, a collapsible fuselage frame, a pair of forward planes detachably secured to the frame, a tail plane detachably secured to the frame, a detachable rudder carried by the frame, a wind tunnel carried by the frame adjacent the tail plane, and a forward wind tunnel carried by the frame between the forward planes.

3. In an aeroplane kite, a collapsible fuselage frame, a pair of forward planes detachably secured to the frame, a tail plane detachably secured to the frame, a detachable rudder carried by the frame, a wind tunnel carried by the frame adjacent the tail plane, a forward wind tunnel carried by the frame between the forward planes, and a bridle attached to the forward planes and the frame.

4. In an aeroplane kite, a collapsible fuselage frame comprising upper and lower members, means for pivotally connecting the members whereby said members may be displaced longitudinally for collapsing, and means for locking the members in their extended position.

5. In an aeroplane kite, a collapsible fuselage frame comprising, an upper member, a lower member, stays pivoted to the forward ends of said members and projecting above and below the same, bars connected pivotally to the upper and lower ends of the stays, the members, stays and bars being adapted to fold compactly together when the frame is collapsed and to swing into extended position when the frame is open, and means for fastening the frame in its open position.

6. In an aeroplane kite, a collapsible fuselage frame comprising, an upper member, a lower member, stays pivoted to the forward ends of said members and projecting above and below the same, bars connected pivotally to the upper and lower ends of the stays, the members, stays and bars being adapted to fold compactly together when the frame is collapsed and to swing into extended position when the frame is open, means for fastening the frame in its open position, and a tunnel stretcher member pivotally connected to the frame and adapted to fold therewith.

7. In an aeroplane kite, a collapsible fuselage frame comprising, an upper member, a lower member, stays pivoted to the forward ends of said members and projecting above and below the same, bars connected pivotally to the upper and lower ends of the stays, the members, stays and bars being adapted to fold compactly together when the frame is collapsed and to swing into extended position when the frame is open, means for fastening the frame in its open position, a tunnel stretcher member pivotally connected to the frame and adapted to fold therewith, and an upright rudder support pivoted to the rear ends of the members of the frame.

8. In an aeroplane kite, the combination with a fuselage frame and supports carried thereby, of upper and lower planes mounted on the supports, and flexible connections carried by the planes and engaging the supports for fastening the planes thereon.

9. In an aeroplane kite, the combination with a fuselage frame having upper and lower planes at its forward end, of a wind tunnel carried by the rear end of the frame, a tail frame detachably connected with the frame, and a vertical rudder detachably mounted over the tail plane.

In testimony whereof I affix my signature.

JAMES T. McLAUGHLIN.