

## CLAIMS

1. An aerial towed platform comprising:  
an airfoil pivotally connected to a propulsion means through a connection of lateral axis rotation  
in a front 25% of said aerial towed platform;  
said airfoil comprising a sheet, a rounded leading edge, a trailing edge, an average chord length,  
two sides, an average span between said sides, and a distributed load;  
wherein the average chord length is greater than the average span.
2. The aerial towed platform of claim 1;  
wherein the distributed load is an evenly distributed load comprising an array of solar cells on  
the upper surface of the sheet, said array comprising a circuit connecting the solar cells;  
wherein the airfoil is a flat plate airfoil.
3. The aerial towed platform of claim 1 wherein the airfoil is flat and rectangular.
4. The aerial towed platform of claim 1; wherein said propulsion means is selected from the  
group comprising: a lead aircraft, a linear motor, and a tractor; wherein said connection is  
selected from the group comprising: hinge joint, a pin joint, and a ball joint.
5. The aerial towed platform of claim 1 comprising a control means, said control means is  
selected from the group comprising: ailerons, flaps, and a horizontal stabilizer;  
wherein said sheet is selected from the group comprising: a flat plate, a canvas, a corrugated  
plastic, and a corrugated board.
6. The aerial towed platform of claim 1 further comprising:  
a platform surface that is either part of or the entirety of a liftpath configured to operate at air  
angles of attack between 0 and 3 degrees; wherein said airfoil is flat and rectangular.
7. The aerial towed platform of claim 1 wherein the aerial towed platform is part of a flying  
towed platform train comprising a lead aircraft followed by a first aerial towed platform followed  
by at least a second aerial towed platform.
8. The aerial towed platform of claim 1 further comprising:  
an average platform width greater than ten times an average platform thickness, and a median  
platform length greater than the median platform width.
9. The aerial towed platform of claim 1 further comprising a pivot resistance device that  
limits the degrees of pitch of said airfoil relative to a tiltwing.

10. An aerial vehicle comprising:  
a plurality of lift-generating surfaces comprising:  
a lifting body surface and a tiltwing;  
said plurality of lift generating surfaces configured to form a liftpath;  
said tiltwing pivotably coupled to said lifting body surface and having at least one tiltwing propulsor;  
wherein said liftpath is an approximately-flat aerodynamically-contiguous rectangular surface longitudinally longer than laterally wide.

11. The aerial vehicle of claim 10 wherein said aerial vehicle is a multicopter;  
wherein said tiltwing is a single front passively-adjusting tiltwing in front of said lifting body surface, said lifting body surface having a single fuselage and at least one counterbalance propulsor.

12. The aerial vehicle of claim 11 wherein lift provided by the front passively-adjusting tiltwing is less than half the multicopter weight.

13. The aerial vehicle of claim 10 further comprising structural or control surfaces extending from said approximately-flat aerodynamically-contiguous rectangular surface.

14. The aerial vehicle of claim 11, comprising a control system capable of configuring the multicopter for a failsafe landing where greater than one third of the multicopter lift is generated by the tiltwing propulsor.

15. The aerial vehicle of claim 10 further comprising a fuselage,  
wherein said liftpath has a width greater than 1.5X the median width of said fuselage.

16'. An aerial vehicle comprising:  
a plurality of landing configurations,  
at least one front tiltwing having at least one tiltwing propulsor, and  
a failsafe vertical landing configuration using only propulsion force from said at least one tiltwing propulsor, said propulsion force having a ratio of vertical lift to horizontal thrust greater than one; an further comprising a configuration with  
a total aerial vehicle lift is more than four times greater than said front tiltwing propulsor lift.

17'. The aerial vehicle of Claim 16', wherein said tiltwing is a single front passively-adjusting tiltwing in front of a lifting body surface, said lifting body surface having a single fuselage and at least one counterbalance propulsor.