[0027] FIG. 11 illustrates a craft according to some embodiments of the present disclosure.

[0028] FIG. 12 illustrates a craft according to some embodiments of the present disclosure.

[0029] FIG. 13 illustrates a craft according to some embodiments of the present disclosure.

[0030] FIGS. 14A-14C illustrate a craft according to some embodiments of the present disclosure.

[0031] FIGS. 15A-15C illustrate a craft according to some embodiments of the present disclosure.

[0032] FIGS. 16A-16B illustrate a craft according to some embodiments of the present disclosure.

[0033] FIG. 17 illustrate a craft according to some embodiments of the present disclosure.

[0034] FIG. 18 illustrates a craft according to some embodiments of the present disclosure.

[0035] FIGS. 19A-19B illustrate a craft according to some embodiments of the present disclosure.

[0036] FIGS. 20A-20B illustrate a craft according to some embodiments of the present disclosure.

[0037] FIGS. 21A-21B illustrate a craft according to some embodiments of the present disclosure.

thrust configuration in FIG. 18. The horizontal thrust configuration may operate as a cruise configuration. Certain features of vertical take-off and/or landing craft 1800 are not shown or discussed in these examples where such features may be similar to those discussed for other embodiments. Proprotors 1806 are shown in a horizontal thrust configuration in FIG. 18. FIG. 18 shows vertical take-off and/or landing craft 1800 with a closed door and retracted landing gear. Edgewise blades or rotors may be connected to one or more booms 1810.

[0100] FIGS. 19A-19B illustrate a craft 1900 in a vertical take-off configuration according to some embodiments of the present disclosure.

Certain features of the vertical take-off and/or landing craft are not shown or discussed in these examples where such features may be similar to those discussed for other embodiments. FIG. 19A shows a top view of craft 1900. FIG. 19B shows a front view of craft 1900.

[0101] FIGS. 19A-19B show exemplary placement of edgewise blades or rotors 1904 relative to tail 1914. Edgewise blades or rotors 1904 may be on the booms 1916 and clear of tail 1914. For example, tail 1914 may extend aft from body 1910. Tail 1914 may extend upward aft of body 1910 and/or the booms 1916 and edgewise blades or rotors 1904 so that control surfaces of tail 1914 are not blocked. Tail 1914 may extend aft beyond booms 1916. Tail 1914 may provide leverage for one or more control surfaces above blades 1904 and one or more control surfaces aft of blades 1904. The one or more control surfaces may be considered to be ruddervators. Tail 1914 may include relatively upright surfaces that extend from a central portion of tail 1914, wherein the surfaces extend at an angle with respect to a horizontal plane or axis (e.g., a ground

plane). Partial lift surfaces 1918, which may contain winglets in some embodiments, are also shown.

[0102] FIGS. 20A-20B illustrate a craft 2000 in a horizontal thrust configuration according to some embodiments of the present disclosure. Craft 2000 of FIGS. 20A-20B may be exemplary versions of craft 1900 shown in FIGS. 19A-19B, where craft 2000 is in a horizontal thrust configuration in FIGS. 20A-20B. Certain features of the vertical take-off and/or landing craft are not shown or discussed in these examples where such features may be similar to those discussed for other embodiments. FIG. 20A shows a top view of craft 2000. FIG. 20B shows a front view of craft 2000.

[0103] Vertical take-off and/or landing craft 2000 may comprise winglets 2018. The winglets may extend at a variety of angles from lift surface 2002 to reduce drag, thereby improving an aircraft's fuel efficiency and cruising range. Winglets 2018 may extend upward from proprotor hubs 2007 and/or the lift surface 2002 when vertical take-off and/or landing craft 2000 is in a cruise configuration.

[0104] FIGS. 21A-21B illustrate a craft 2100 in a horizontal thrust configuration according to some embodiments of the present disclosure. Certain features of vertical take-off and/or landing craft 2100 are not shown or discussed in these examples where such features may be similar to those discussed for other embodiments. Tail 2114 may comprise one or more control surfaces. Tail 2114 may comprise two control surfaces 2102 configured to act as elevators and/or rudders on respective upward portions of tail 2114. Actuators for control surfaces 2102 may be in a tail. Control modes for the control surfaces may be operated mechanically or electronically.

CLAIMS

What is claimed is:

1. A craft comprising:

a body;

a lift surface attached to the body, the lift surface comprising a first partial lift surface positioned at a first end and a second partial lift surface positioned at a second end, wherein first partial lift surface and second partial lift surface are configured to rotate;

the first partial lift surface comprising a first proprotor, wherein the first proprotor is configured to rotate with the first partial lift surface;

the second partial lift surface comprising a second proprotor, wherein the second proprotor is configured to rotate with the second partial lift surface;

a first boom positioned between the body and the first proprotor and attached to the lift surface; and

a second boom positioned between the body and the second proprotor and attached to the lift surface;

wherein the first boom and the second boom are connected via a tail aft of the body.

2. The craft of claim 1, wherein at least a portion of the tail is positioned above the lift surface when the craft is in a rest position.

3. The craft of claim 1, wherein the tail extends upward from the body and connects above the body.

4. The craft of claim 3, wherein the tail includes a Bronco tail.

5. The craft of claim 1, wherein the first boom and the second boom each comprise at least one edgewise blade.

6. The craft of claim 1, wherein at least one control surface is positioned at least partially above a rotation plane of the edgewise blades.

7. The craft of claim 1, wherein at least one of the first partial lift surface and the second partial lift surface is configured to rotate around an axis substantially parallel to the lift surface.

8. The craft of claim 1, wherein at least one of the first partial lift surface and the second partial lift surface comprises a winglet.

9. The craft of claim 1, wherein at least one of the first partial lift surface and the second partial lift surface comprises a wing surface.

10. The craft of claim 1, wherein the first and second partial lift surfaces each extend outboard from the proprotors, and wherein the first and second partial lift surfaces are configured to resist a gyroscopic effect caused by the rotation of the proprotors in a vertical take-off and landing configuration.

11. The craft of claim 1, wherein at least one of the first boom and the second boom comprises an electric battery used to power a motor.

12. A craft comprising:

a body;

a lift surface attached to the body;

a first proprotor and a first hub, wherein the first hub is attached to a first end of lift surface and configured to rotate about an axis substantially parallel to the lift surface;

a second proprotor and a second hub, wherein the second hub is attached to a second end of lift surface and configured to rotate about an axis substantially parallel to the lift surface;

a first boom positioned between the body and the first end, the first boom comprising at least one rotor;

a second boom positioned between the body and the second end, the second boom comprising at least one rotor; and

a tail attached to and extending aft of the body.

13. The craft of claim 12, wherein the tail includes a V-tail portion having at least two surfaces extending upwards aft of the body.

14. The craft of claim 12, wherein the first boom and the second boom each comprise at least two rotors.

15. The craft of claim 12, wherein the lift surface includes a first partial lift surface positioned at the first end and a second partial lift surface positioned at the second end, wherein the first partial lift surface is configured to rotate with said first hub and the second partial lift surface is configured to rotate with said second hub.

16. The craft of claim 15, wherein at least one of the first partial lift surface and the second partial lift surface comprises a wing portion.

17. The craft of claim 15, wherein at least one of the first partial lift surface and the second partial lift surface comprises a winglet.

18. The craft of claim 15, wherein the first and second partial lift surfaces each extend outboard from the first hub and the second hub, respectively, and wherein the first and second partial lift surfaces are configured to resist a gyroscopic effect caused by the rotation of the proprotors in a vertical take-off and landing configuration.

19. The craft of claim 12, wherein at least one of the first boom and second boom comprises an electric battery used to power a motor.

20. The craft of claim 12, wherein at least one control surface is positioned at least partially above a rotation plane of the rotors.