

D. V. COLE.
FLYING MACHINE.
APPLICATION FILED DEC. 19, 1911.

1,027,322.

Patented May 21, 1912.
3 SHEETS—SHEET 1.

Fig. 1.

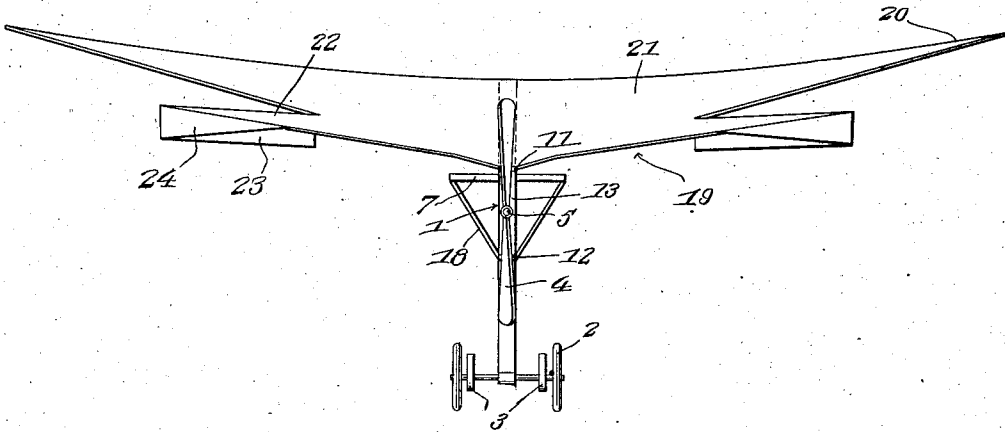


Fig. 4.

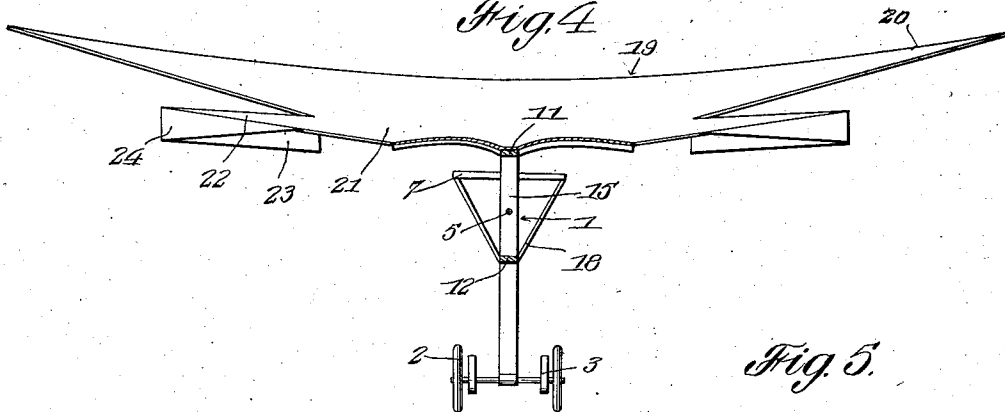
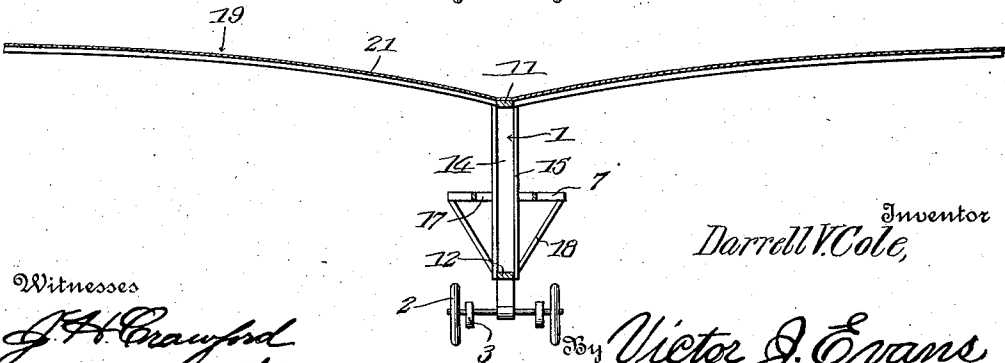


Fig. 5.



Witnesses

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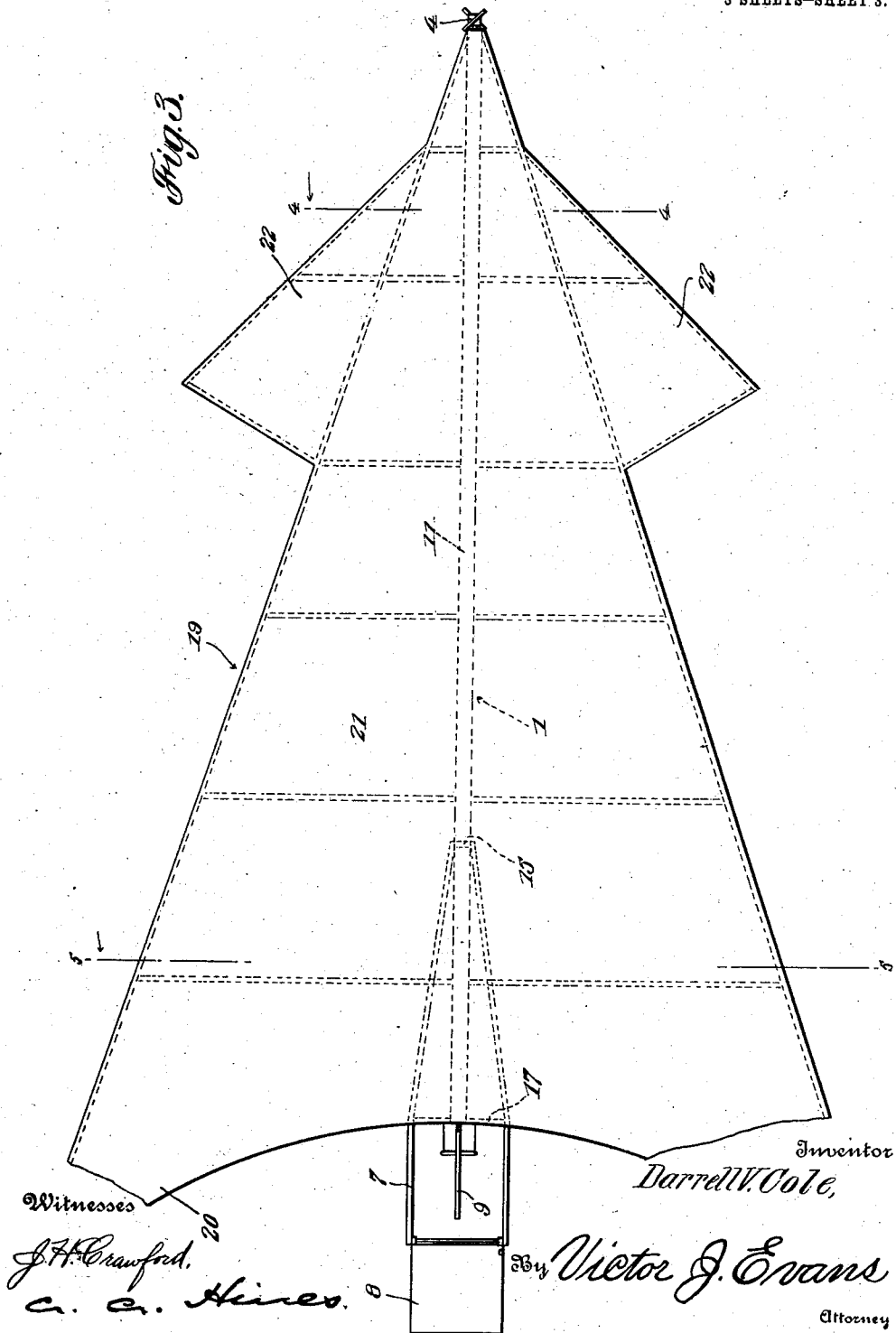
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

DARRELL V. COLE, OF LOS ANGELES, CALIFORNIA.

FLYING-MACHINE.

1,027,322.

Specification of Letters Patent.

Patented May 21, 1912.

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To all whom it may concern:

Be it known that I, DARRELL V. COLE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Flying-Machines, of which the following is a specification.

This invention relates to flying machines, and its object is to provide a flying machine of the heavier-than-air class which shall be self-righting to automatically maintain its balance, which is simple of construction and capable of being constructed at a comparatively low cost, and which is susceptible of high speed and lifting power.

The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view of a flying machine embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a top plan view. Figs. 4 and 5 are vertical transverse sections on lines 4—4 and 5—5 of Fig. 3.

Referring to the drawings, 1 designates the frame of the machine, which extends longitudinally in the line of flight, and edgewise in a vertical direction, so as to reduce head resistance, said frame being mounted at its front and rear ends upon supporting wheels 2 arranged to coöperate with landing skids or runners 3. Arranged at the forward end of the frame is a propeller 4 mounted on a shaft 5 driven by or from a motor 6, arranged preferably at a point in front of the center of pressure and gravity of the machine, in order that the weight of the motor will tend to act as a balancing medium to preserve the fore and aft equilibrium of the machine. Projecting from the rear end of the frame are spaced bars 7 upon which is pivotally mounted a horizontal rudder or elevator 8. Pivoted to the rear end of the frame is a vertical or direction rudder 9 disposed in advance of the rudder 8 and movable between the projecting ends of the bars 7. These rudders may be operated in any suitable manner from a controlling device, not shown, arranged adjacent to the aviator's seat 10.

The frame structure 1 embodies upper and lower longitudinal bars 11 and 12, connected and held in spaced relation by bow

and stern posts 13 and 14, a series of uprights 15 arranged in pairs, and diagonally arranged sets of crossing struts or braces 16. The bars 7 have converging forward ends secured to the rear pair of uprights 15 and parallel rear ends to which the rudder 8 is pivoted, said bars being secured intermediate their ends to a transverse spreader bar 17 secured to the stern post 14 and reinforced by inclined struts or brace bars 18 from the lower longitudinal frame bar 12. By this construction a strong and durable type of frame is provided which eliminates the objectionable head resistance common to machines of that type in which the frame structure extends to a greater or less extent at right angles or transversely to the line of flight. The bar 11 is fixed to the supporting surface 19 of the machine, which comprises a suitable frame having a covering of fabric or other suitable material. This supporting surface extends the full length of the frame structure, and is of triangular form or dart-shaped, with its apex forwardly presented and its base or rear portion cut out in substantially V-shape, to provide rear lateral stabilizing tips or wings 20. The said supporting surface is preferably curved in a longitudinal direction and has its main wings 21 disposed at a dihedral angle, so as to secure maximum lifting power and inherent automatic lateral stability.

The supporting surface is provided at its forward part with lateral triangular or supplemental wings or extensions 22 providing forward stabilizing portions, operating as air guiding surfaces to conduct the air toward the reaction surface of the body of said surface, thus concentrating the air pressure upon the supporting surface in the forward travel of the machine, with a resultant increase in the lifting power. The apices of the triangular supplemental wings 22 are forwardly disposed and their bases or rear edges are arranged at oblique angles to the line of flight and relatively converging in a rearward direction. To such rear edges of the wings 22 are secured depending rear and side flaps or vanes 23 and 24, forming pockets at the rear of said wings to confine the air and deflectors to guide the air inwardly and rearwardly to the surface of the plane 19. By this construction a larger volume of air condensed or compressed to a certain degree is conducted to the re-

action surface of the supporting plane for a more efficient dynamical reaction and supporting pressure.

It will be observed that the construction described provides a machine which is automatically self-balancing, and which has a maximum amount of lift and a minimum drift, enabling high speed to be obtained.

Having thus described the invention, what I claim as new is:

1. A flying machine including a frame structure, a substantially triangular supporting surface carried by said frame structure with its apex forwardly presented, substantially triangular wings projecting laterally from the side margins of said supporting surface, and depending flaps at the side and rear edges of said wings.

2. A flying machine including a frame structure, a substantially triangular supporting surface carried by said frame structure with its apex forwardly directed, substantially triangular wings projecting from the lateral margins of said supporting surface and having their rear edges inclined convergently in an inward and rearward direction, and flaps depending from the side and rear edges of said wings.

3. A flying machine including a frame structure, a substantially triangular sup-

porting surface carried by said frame structure with its apex forwardly directed, said surface having its rear edge V-shaped to provide rear stabilizing wings, front triangular wings projecting from the lateral margins of the supporting surface and having their rear edges inclined convergently in an inward and rearward direction, and flaps depending from the side and rear edges of said front wings.

4. A flying machine including a frame extending longitudinally parallel with the line of flight and edgewise in a vertical direction, a substantially triangular supporting surface carried by said frame with its apex forwardly projecting, said surface having a V-shaped rear edge providing rear stabilizing wings, front triangular wings projecting from the lateral margins of said supporting surface with their rear edges convergently inclined inwardly and rearwardly, and flaps depending from the side and rear edges of said front wings.

In testimony whereof I affix my signature in presence of two witnesses.

DARRELL V. COLE.

Witnesses:

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E. SEBA ALLEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."