

N<sup>o</sup> 19,259



A.D. 1906

(Under International Convention.)

Date claimed for Patent under Patents Act, 1901, }  
being date of first Foreign Application (in } 21st Sept., 1905  
France),

Date of Application (in the United Kingdom), 28th Aug., 1906

At the expiration of twelve months from the date of the first Foreign Application,  
the provision of Section 1 (2) of the Patents Act, 1901, as to inspection of  
Specification, became operative

Accepted, 30th May, 1907

### COMPLETE SPECIFICATION.

#### Improvements in or relating to Flying Machines.

We JULES CORNU and PAUL CORNU, Engineers, both of 24 rue de la Gare, Lisieux, France, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to a flying apparatus in which the volume of air displaced by a supporting part, such as a screw propeller or a turbine, is utilised, in combination with planes with adjustable inclination arranged below the said part, for the purpose of supporting or of simultaneously supporting and propelling the apparatus.

10 In the accompanying drawing:—

Figure 1 is a diagrammatic elevation of the whole of a flying apparatus of this kind, of which the inclined propelling planes are arranged below the horizontally rotating propellers acting as supporting parts.

Figure 2 is a diagrammatic end view of the same apparatus.

15 The apparatus comprises one or more screw propellers *a* with vertical spindles, rotating in the cross-beams of a frame *b* to which is suspended the car carrying the motor and the aeronaut. Below the said screw propellers, that is to say, near their driving surface, are arranged planes *c* of a length equal to the diameter of the screw propellers, pivoted at their ends to rods *d* suitably guided  
20 and connected to levers *e* pivoted in the centre to spindles *f* secured to the frame *b*. The whole of the planes *c* form therefore a kind of louvre shutter with pivoted blades, the inclination of which can be modified by means of a lever *g* secured to the pivot pin of the central lever *e*. The said lever *g* is provided with a locking device, co-operating with a sector *h* for maintaining the  
25 planes *c* in any desired position.

The said lever *g* might evidently be replaced by any other suitable part, capable of varying the inclination of the planes *c* in both directions.

The planes *c* can thus form between them intervals through which the volume of air displaced under pressure by the screw propellers *a*, is obliged to pass.

30 The working is as follows:—

The apparatus being considered at the moment of starting, the planes *c* are arranged vertically; the propellers *a* being operated by the motor, the whole of

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*J. and P. Cornu's Improvements in or relating to Flying Machines.*

the apparatus rises in vertical direction, the planes offering merely their edges to the current of air displaced by the screw propellers *a*, and thus not affecting the propulsion in the least and not absorbing any ascensional power. The apparatus having been raised if it is desired to advance whilst being supported at a certain height, it is sufficient to incline the planes *c* in order that the displaced current of air should act on them, driving them in the direction of the arrow, in the same way as air acting on the wings of a wind-mill, with the difference, however, that instead of being circular, the advance in this case will be in a straight line. 5

The steering of the apparatus is effected by means of a rudder *i* of a suitable construction. 10

By manipulating the planes *c*, the following different phases of the working of the apparatus can be obtained.

1. The planes *c* being in vertical position, the thrust of air on the same is nil, and the screw propellers act merely to produce the raising of the apparatus. 15

2. The planes *c* being inclined, their action intervenes to propel the apparatus, of which the speed of its horizontal displacement will vary in accordance with their greater or less angle, the working of the screw propellers still continuing to support the apparatus.

3. The planes *c* being placed so as to prevent the passage between them of any air displaced by the screw propellers *a*, the ascensional effort of the said propellers will be counteracted, and the apparatus will descend like a parachute. 20

4. The planes *c* being inclined into a position opposite to that considered under 2), they will at first act as a brake, and then direct the apparatus backwards, reversing thus being effected. 25

All the above stages are obtained without any modification in the speed, or in the direction of rotation, of the screw propellers.

We are aware that it has previously been proposed for other purposes to employ inclinable blades above screw propellers and to arrange such blades below lifting screws in aerial machines provided with vertical driving screw propellers for the purpose of acting when desired as a parachute, or as flying wings to assist propulsion, and we make no claim to such arrangement, but 30

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:— 35

1. A flying apparatus characterised by the arrangement below supporting devices such as horizontal screw propellers or turbines, of pivoted planes of adjustable inclination upon which the air displaced by the screws can act substantially as and for the purpose described.

2. The flying apparatus substantially as described or as illustrated in the accompanying drawing. 40

Dated this 28th day of August 1906.

**BOULT, WADE & TENNANT,**  
London Agents.

[This Drawing is a reproduction of the Original on a reduced scale.]

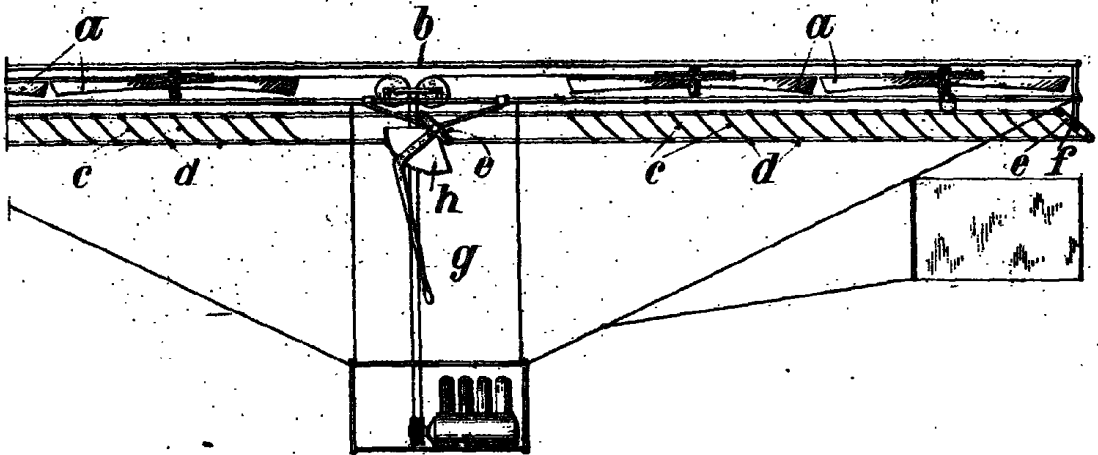
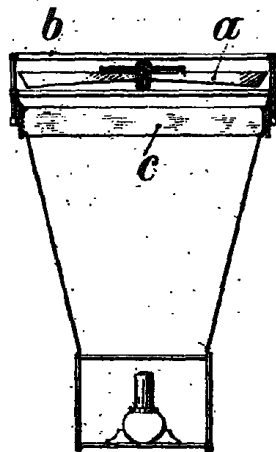


FIG. 2.



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