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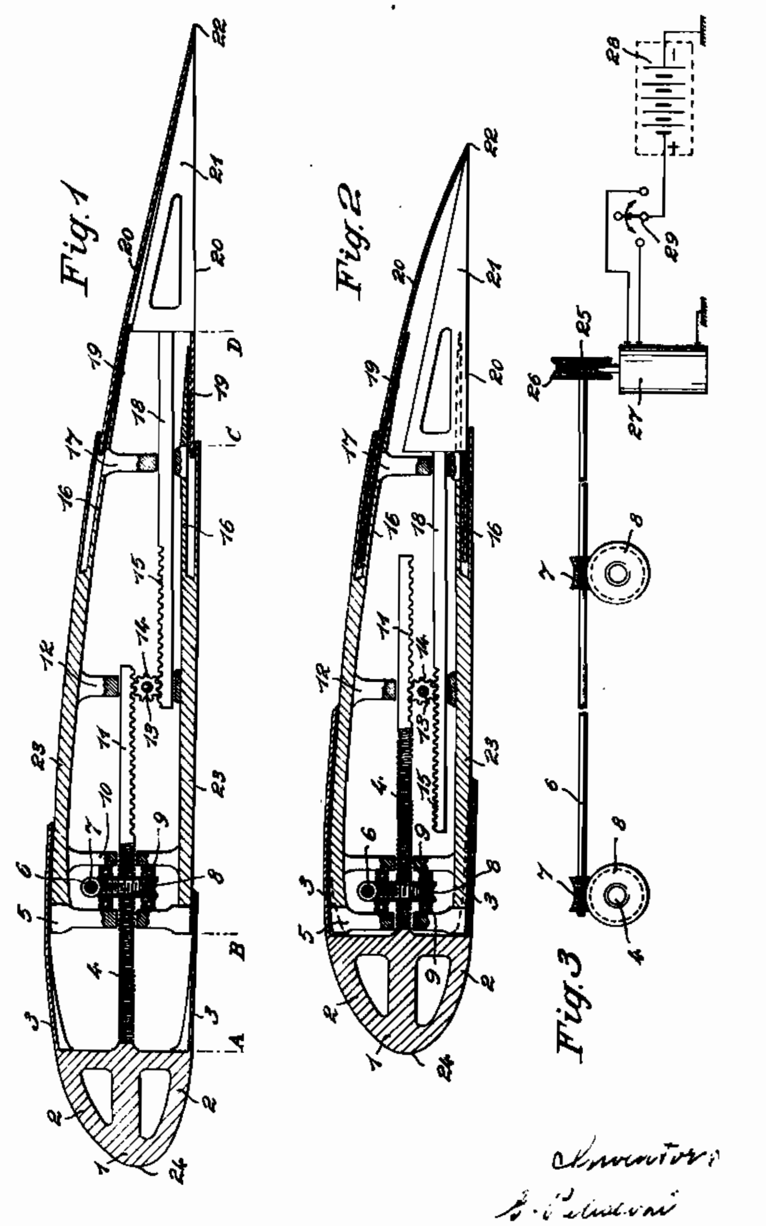

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WING FOR AIRCRAFTS WITH A VARIABLE SURFACE EVEN DURING THE FLIGHT

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The present invention relates to a wing for aircrafts, characterised in that the wing surface may be varied at will both on earth and during the flight.

The possibility of varying the carrying or lifting surface of a wing before and during the flight offers remarkable advantages to aerial navigation as for instance in the following cases.

(A) During the flights at great distance, characterised by the quantity of fuel at disposal on the aircraft at the moment of start, said fuel being absorbed by the power during the flight thus diminishing the weight of the same fuel on the aircraft so that after a certain time the wing surface is in exuberance, the possibility in this case to reduce the lifting surface during the flight allows a remarkable and progressive increase of speed to the aircraft and at the same time to reach the destinations prefixed in a remarkably shorter time.

(B) In the aircrafts with the charge of a high lift wing section obliged to a long running for starting, the possibility to increase the wing surface diminishes the lifting coefficient thus the starting of the aircrafts being remarkably facilitated.

(C) In the aircrafts flying at a top speed obliged to land at a high speed, the possibility to increase the wing surface during the flight removes all the systems of oversustentation studied for deforming the profile in order to modify the air flux all around and to brake the aircraft at landing.

In the accompanying drawing the Figures 1 and 2 show schematically the complex of the wing in the position of maximum and minimum surface which may be obtained.

Fig. 1 shows the profile of the wing with the maximum surface obtained running from the leading edge **24** to the trailing edge **22**, said surface being obtained by the displacement of the half wings **1** and **21** occurred from B to A for the fore one and from C to D for the back one **21**.

Fig. 2 shows the profile of the wing with the two half wings **2** and **21** completely retired, the wing having the minimum lifting surface.

The wing is subdivided into two parts: the one fixed, the other moveable.

The fixed part going from B to C comprises the longerons **5** and **17**, the fixed ribs **23** and the half ribs **19**. In said part there are to be found all the functioning members for the variation of the wing surface.

The moveable part comprises the half wings **1** and **21**.

The fore half wing **1** with the leading edge **24** comprises the fixed ribs **2**, the half ribs **3** and the screw-axle **4** with rack **11**, with said axle all the parts mentioned forming a single body.

The back half wing with the trailing edge **22** comprises the rib **21**, the sliding covering **20** and the axle **18** with rack **15**, all the parts mentioned forming with this axle a unique body.

Fig. 3 shows the motion transmitting axle **6** running longitudinally through the wing with worm gears **7**, screw wheels **8**, screw axles **4**; while the screw group **26** and **25** and the electric motor **27** are placed within the fuselage with the electric battery **28** and the control for the wing surface variation comprising the three-way switch **29**.

The device is actioned by the electric motor **27** placed in the fuselage and fed by the electric battery **28**.

The control device comprises the three-way switch **29**:—the neutral position N, the left position S, the right side position D.

According to position S the electric motor rotates in the left handed direction and according to position D in the right handed one.

The electric energy of the battery **28** is transmitted over the switch **29** to the electric motor **27**, this motor making the worm wheel **25** rotate which is engaged with the screw wheel **26** fixed on the transmitting shaft **6**. On this shaft **6** there are fixed the worm wheels **7** each being in engagement with a screw wheel provided with a screw hole **8**.

In such a way the number of revolutions of the electric motor **27** is transmitted strongly diminished to the screw wheels **8**, which, since they are obliged to rotate on their own axles, the thrust bearings **9** preventing them from executing a motion of translation, oblige the screw axles **4** in engagement with them to be displaced forwards and backwards longitudinally according to the sense of rotation communicated to the electric motor **27** by the switch **29**. Owing to the interposition of the tooth wheel **14** rotating on the pin **12**, between the racks **11** and **15** fixed on the axles **4** and **18**, obliges the axle **18** to be displaced in the opposite sense of the axle **4**.

In this way the speedy rotary motion of the electric motor **27** has been transformed into the slow rectilineal motion of the half wings **1** and **21** by means of the axles **4** and **18** with which said half wings form a unique body.

The device also comprises an automatic stop allowing to stop the stroke of the half wings when they have reached the maximum or the minimum of their stroke.

The irreversibility of the half wing motion is secured by the screw and the helicoidal groups.

All wing surface variations are obtained at will as well on earth as in any other circumstance of flight without displacing the position of the centre of gravity of the aircraft with respect to the wing and its centre of pressure.

The motion of the half wings may be obtained with any other possible device and different from the one described and illustrated only by way of example.

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