

Variable Incidence



The Supermarine 322 flying with the wing at a large angle and the flaps down.

Ancient Device in Super-modern Form Applied with Success to Supermarine Type 322

THE history of flying has many instances of ideas and devices being tried out by the pioneers, some being adopted and surviving, others being abandoned after brief trials, either on account of basic defects or because the materials necessary to make them a success were not available in those days.

It is difficult to say with any certainty who first thought of attaching the wings of an aircraft in such a way that the angle of incidence could be varied in flight. Several attempts were made, some varying the incidence and camber simultaneously, others using a rigid wing section and changing the incidence only. The difficulties were considerable, especially in view of the somewhat crude state of the art of aircraft design which was all that had been reached at that time.

To the best of our recollection, the first variable-incidence machine to fly successfully was the French Paul

Schmitt biplane exhibited at the Paris Aero Show of 1913. During 1914 the Paul Schmitt established world's altitude records carrying six, seven, eight and nine passengers, so it must be assumed to have been a fairly good aircraft. One would not, however, like to claim that it could not have established the same records if its wings had been fixed. It probably could have done so. But at least the mechanics and aerodynamics of the scheme must have been satisfactory.

Stationary Centre of Pressure

The biplane wings of the Paul Schmitt were carried on two bearings in brackets rising from the top longerons of the fuselage. The lower plane passed right under the fuselage without being attached to it, and the pivot point was approximately one-third of the gap from the upper wing. Thus when the incidence was increased (by a hand-

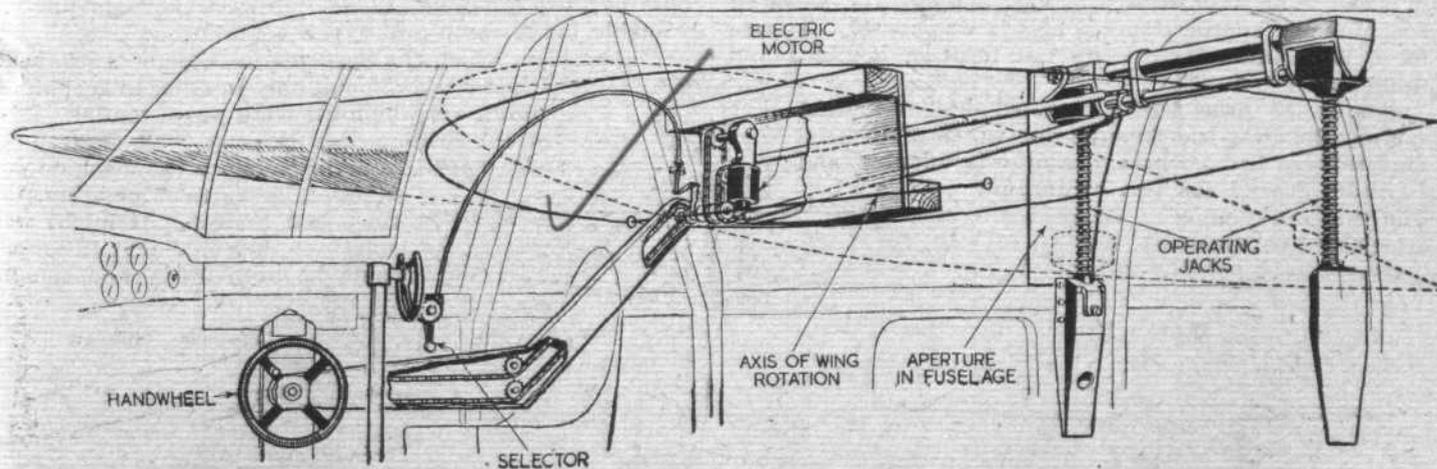


Diagram of incidence gear on Supermarine 322. Alternative hand and electric operation is provided