June 19, 1928. 1,674,177

S. NYAKAS

SPEED AEROPLANE

Filed Dec. 14, 1926 2 Sheets-Sheet 1

Fig.1.

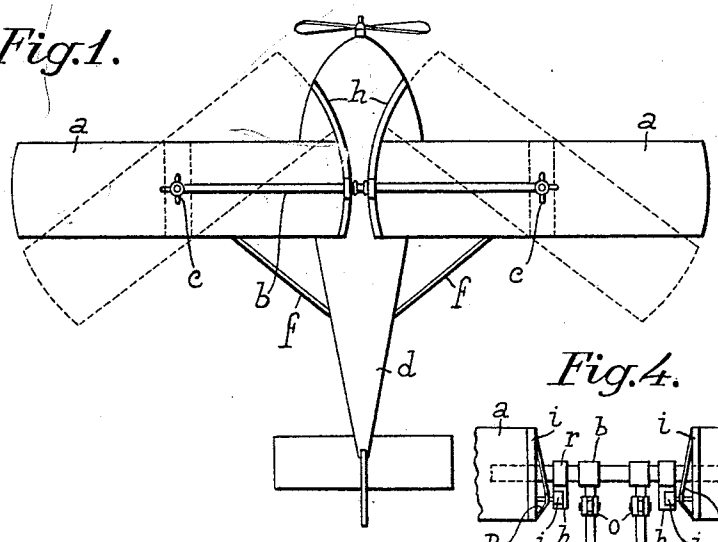


Fig.4.

Fig.2.

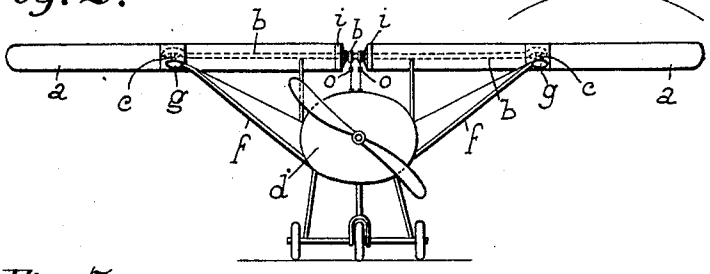
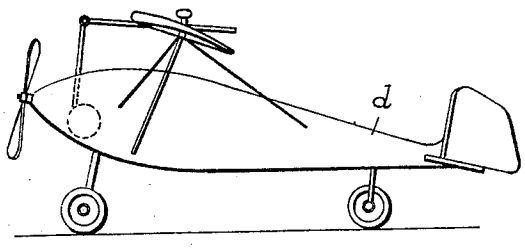


Fig.3.



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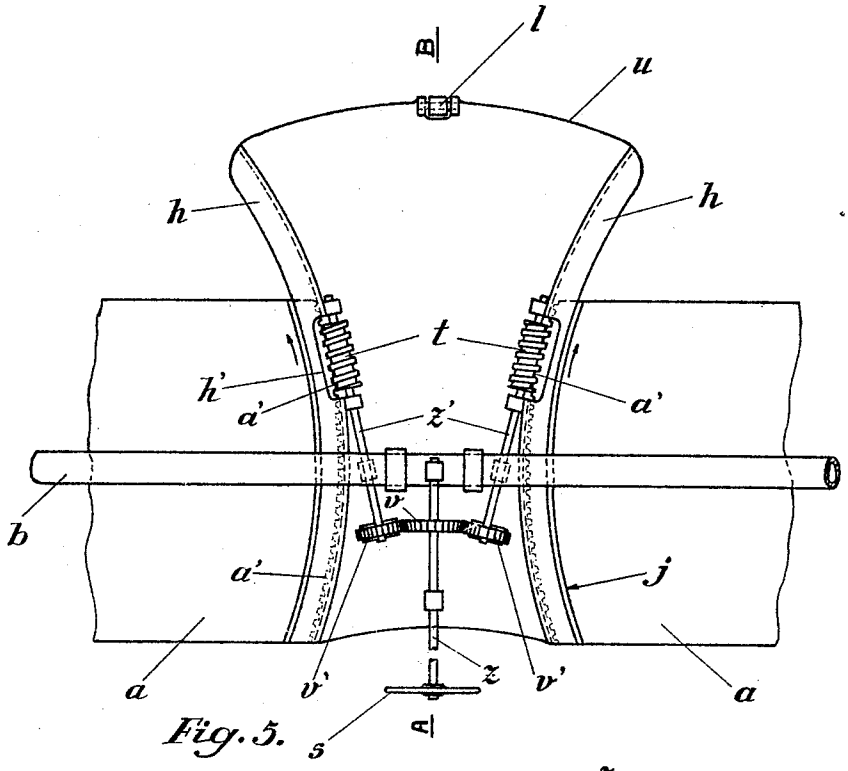


Fig. 5.

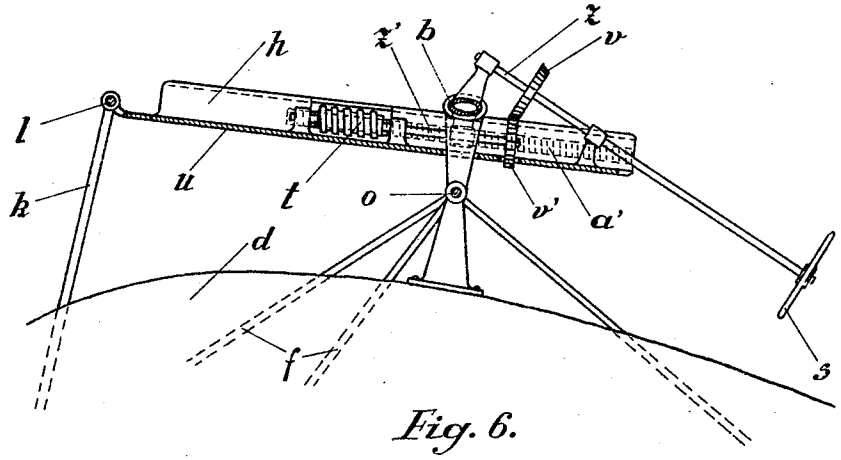


Fig. 6.

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Patented June 19, 1928. 1,674,177

UNITED STATES PATENT OFFICE.

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SPEED AEROPLANE.

Application filed December 14, 1926, Serial No. 154,827, and in Hungary January 9, 1926.

Aeroplanes have become known, the supporting planes of which are oscillatable around horizontal transverse axles and around vertical axles.

This invention relates to an aeroplane the supporting planes of which are mounted each on an axle which traverses perpendicularly through the center of gravity of the supporting plane and is adapted to be inclined in forward and rearward direction, the inner ends of the supporting planes finding a hold on the hull of the aeroplane which hold is given by the adjusting mechanism itself. Each supporting plane forms thus a well balanced two-armed lever, onto which the torque is transmitted as well upon the inner end of the arm, as through the intermediary of the pivot axle.

The invention is further characterized in that, by the variation of the angle of inclination and by the tension of the supporting planes in their own plane which is wedge-shaped to the direction of flight the equilibrium of the flying machine is secured, the supporting planes having a secure hold on their inner end.

The invention is specially designed for building speed-aeroplanes, this being really the main object of the invention, as by the gradual distortion of the supporting planes in wedge shape with regard to the direction of flight the maximum speed can be obtained, owing to the sliding off of the air and to the reduction of the contacting surfaces.

An embodiment of the invention is illustrated, by way of example, in the accompanying drawing in which

Fig. 1 shows a top plan view of the aeroplane.

Fig. 2 is a front elevation.

Fig. 3 is a side elevation.

Fig. 4 shows on larger scale how the ends of the supporting planes are arranged on the guide bar.

Fig. 5 shows a form of construction of the supporting plane-adjusting-device in top-plan view.

Fig. 6 is a section on line A—B of Fig. 5.

The supporting planes *a* of the aeroplane are adapted to be turned, on the one hand, for varying the angle of inclination, around an axle which connects the centers of gravity of the two supporting planes and, on the other hand, each supporting plane around an axle which traverses the supporting plane perpendicularly to the center of gravity, i. e. in the plane of the supporting plane wedge-like with regard to the direction of flight.

With this object in view a carrying axle *b* is arranged on the top surface of the supporting planes, the two ends of said axle *b* being connected to the upper ends of the axles *c* which perpendicularly traverse the supporting planes. The lower ends of axles *c* are hingedly connected at the points *g* to supporting rods *f* fixed on the machine frame *d* so that the axles *c* can be oscillated, forwards and backwards with regard to the direction of flight, in the hinges *g* which are situated directly underneath the lower surface of the supporting planes *a*.

The carrying axle *b* is stayed at the middle by arms *m* which stand at right angles to the same, the lower ends of said arms being fixed to the hull of the aeroplane by means of hinges *o* which are in alinement with the hinges *g*.

A stiffened transverse rib *i* is arranged on the inner end-edge of each supporting plane *a* and short supporting arms *p* project in lateral direction from this rib and carry an arc-shaped guide bow *j*. The two guide bows *j* are accommodated in arc-shaped guide bars *h* which are rigidly fixed on the carrying axle *b* by means of rings *r*.

Owing to this arrangement the supporting planes are shiftable in their own planes in the guide bars *h* and they oscillate during this shifting movement around the axles *c* owing to the tubular bearing. This tubular bearing is also mounted on a reinforced transverse rib (indicated in dot lines in the drawing).

The guide-bows *j* of the supporting planes *a* have, as shown in Figs. 5 and 6, in the edges guided in the guide-bars *h* teeth *a'* with which a worm *t* meshes which projects through a cut-out portion *h'* of the guide bar, said worm being revolvably mounted in the corresponding guide-bar. The spindles *z'* of the two worms *t* are connected by a gear-wheel-transmission *v*, *v'* with a spindle *z* which carries on its free end a hand-wheel *s* within reach of the pilot. The two guide bars *h* are rigidly connected the one with the other, for instance by a plate *u*, on the front edge of which, for instance at *l*, a rod *k* is hingedly mounted which is also connected to an adjusting element, arranged near the pilot's seat. It is evident that, on the one hand, the angle formed by the two supporting planes *a* is adjustable by means

of the adjusting elements *s* and on the other hand, the two supporting planes can be simultaneously pivoted around the axle *o* by means of the hinged rod *k*.

When ascending or descending or during the flight the pilot can make the supporting planes *a* oscillate around the hinges *g*, *o* in forward or backward direction, i. e. in the direction of flight, so that they adopt a position which is in best accordance with the desired elevating force and with the desired speed of flight.

When, during the flying, the air resistance increases more than is necessary for maintaining the aeroplane in the floating state, one oscillates the supporting planes *a* around their axles of rotation *c* in their own plane into a position shown in Fig. 1 in dash line, whilst the sliding jaws *j* of the planes are guided in the bars *h*. The oscillation may be of any degree.

In the oscillated position the supporting planes stand wedge-like and present with regard to the air a smaller resistance surface, reduce the excessive air pressure by sliding off, whereby the speed of flight may be considerably increased.

The adjusting in both directions can be evidently effected by hand or by means of mechanical power, and the selection of the power transmissions which have to be provided for this purpose and the arrangement of the pairs of the supporting planes the one above the other or the one behind the other does not alter anything in the essential character of the invention. In the drawing given by way of example the supporting planes are shown constructed in regular shape mounted on a monoplane and this invention is adapted for flying machines of any kind and for all shapes of supporting planes. The machine may also be constructed in such a manner that the supporting planes execute only one of the movements described, without departing hereby from the character of the invention.

I claim:—

1. An aeroplane, comprising in combination supporting planes oscillatable around a horizontal axis and around a vertical axis, a carrying axle on the surface of said supporting planes, a vertical axle in each supporting plane and traversing the center of gravity of the corresponding supporting plane, hinges connecting the ends of said carrying axle to said vertical axles, and a hinge on the lower end of each vertical axle directly underneath the lower surface of the supporting planes and adapted to be oscillated forwards and backwards so that said supporting planes may be inclined at will around said hinges.

2. An aeroplane, comprising in combination supporting planes oscillatable around a horizontal axis and around a vertical axis, a carrying axle on the surface of said supporting planes, a vertical axle in each supporting plane and traversing the center of gravity of the corresponding supporting plane, hinges connecting the ends of said carrying axle to said vertical axles, and a hinge on the lower end of each vertical axle directly underneath the lower surface of the supporting planes and adapted to be oscillated forwards and backwards so that said supporting planes may be inclined at will around said hinges, an arc-shaped guide bar at each end of said carrying axle, an arc-shaped bow at the inner end of each supporting plane and guided in the corresponding guide bar, an adjusting element arranged in front of the pilot's seat, and a transmission gear connecting said steering arm to said arc-shaped guide bars.

In testimony whereof I affix my signature.

ISTVAN NYAKAS.