

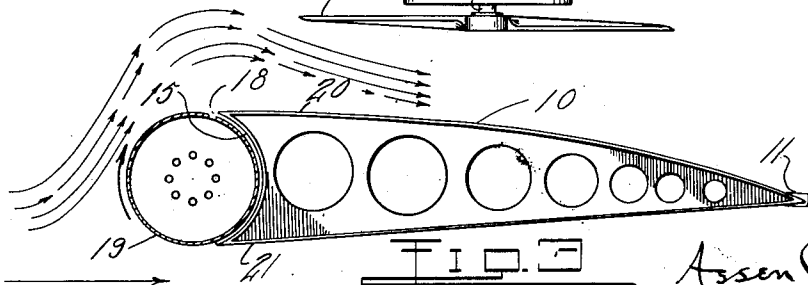
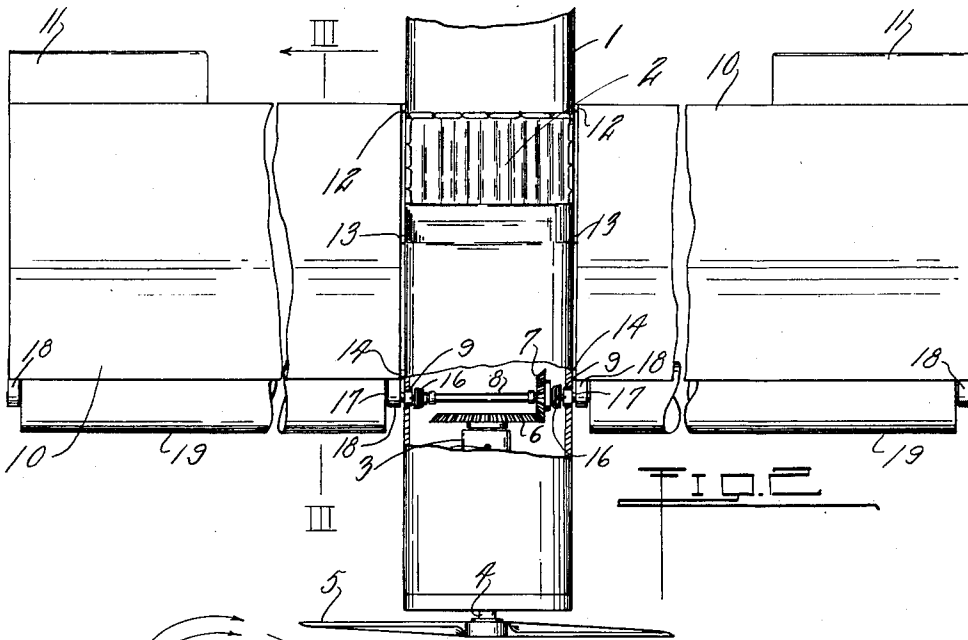
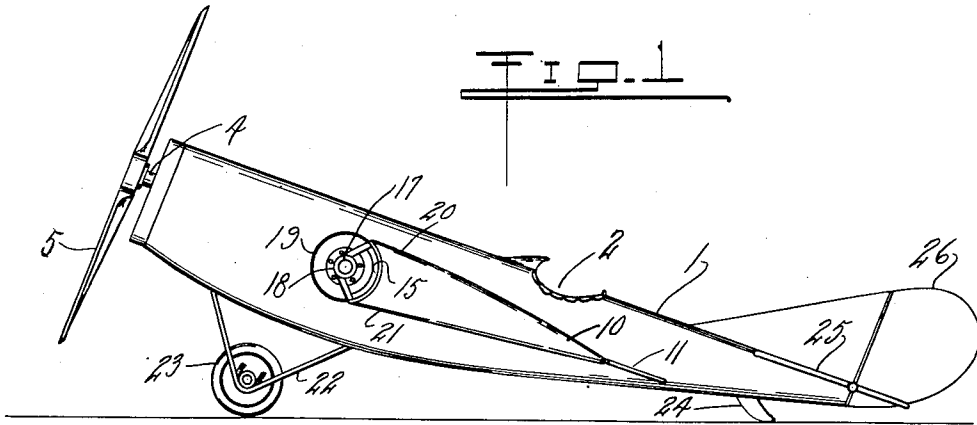
Jan. 11, 1927.

1,613,834

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AERIAL NAVIGATION

Filed March 19, 1925



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# UNITED STATES PATENT OFFICE.

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## AERIAL NAVIGATION.

Application filed March 19, 1925. Serial No. 16,641.

This invention relates to the modification of wind or air resistance.

This invention has utility when incorporated in apparatus for aerial navigation for heavier-than-air machines of the plane or wing type.

Referring to the drawings:

Fig. 1 is a side elevation of an embodiment of the apparatus in a mono-plane;

Fig. 2 is a plan view, with parts broken away, of the mono-plane of Fig. 1; and

Fig. 3 is a section on the line III—III, Fig. 2.

Fuselage or body 1 is shown as having driver's station or cock-pit 2 for the operator of the plane or air craft. Forwardly in the body 1 is internal combustion motor 3 having crank shaft 4. From the forward end of this crank shaft 4 is propeller 5 herein shown as rotating in counterclockwise position viewed from the front of the plane. This crank shaft 4, toward the driver's station 2, is provided with gear 6 in mesh with bevel pinion 7 on transverse shaft 8 mounted in bearings 9 in fixed position as to the body 1.

Connected to the body 1, and laterally extending, are wings 10 having at their outer following edges, ailerons 11. Connections 12, 13, 14, serve to fix the lateral extension of these wings or planes 10 as to the body 1. The planes or wings 10 proper, in their forward portion provide a concave seat 15.

The shaft 8 at each end is provided with a flexible coupling 16 for supplemental shaft 17 mounted in bearings 18 carried by the planes or wings 10 as buoyancy promotion mechanism. Fixed on each shaft 17 is cylinder or drum 19 in position to partially nest in the seat 15. The diameter of this drum and live or leading edge for the wings is such that it is approximately tangential with upper portion 20, and lower portion 21, of the wings or planes 10. The surface speed of this drum 19 is preferably in excess of the travel rate of air normally as to portions of the plane. Accordingly, this means that the drum 19 in its rotation is an effective pick-up for adjacent regions of the air. The direction of rotation of this drum 19 is such that as riding into the air, currents as blown rearwardly by the propeller 5, as well as

other air currents entered into by the plane in its travel, as striking the drum 19 are thrown upward and along the top 20 of the plane 10. When the leading edge rotates upwardly, the center of pressure is near the forward portion of the wing. However, when the leading edge is non-rotary, the center of pressure is not so far forward, but is farther back along the wing, thus permitting gliding. The action of this rotary leading edge is such that there is an excess of air flow thrown along the side 20 of the plane 10 at a rate to reduce the pressure, with resultant greater buoyancy effect from the lower side 21. In practice, this control of the current or air resistance, as herein disclosed, is a material factor in not only reducing the head-on resistance and thereby making possible a greater travel rate with less expenditure of energy, but there is a further material stabilizing factor due to this control of the air about the buoyancy promotion mechanism of the apparatus. This means that the lifting power of the plane from a field or position of rest is so under control that an ascent may be accomplished in a much shorter lineal range. Likewise, as this means a buoyancy at a less rate of velocity, it is possible in landing so to control or tilt the forward end of the plane upward that its lineal travel rate is so materially reduced that the plane may settle down with a much reduced running line requirement.

However, notwithstanding these advantages of safety and short range of control with efficiency of operation, the plane is provided with landing and ascending equipment in the form of brackets 22 carrying landing or ground wheels 23, rearwardly from which is tail skid 24 in the region of the horizontal axis stabilizer 25 and the vertical axis rudder 26.

What is claimed and it is desired to secure by United States Letters Patent is:—

An airplane having a body, wings oppositely extending from said body, cylindrical leading edges for said wings, and driving means from said body flexibly connected to said edges for rotating the edges.

In witness whereof I affix my signature.  
ASSEN C. JORDANOFF.