March 9, 1926. 1,575,680

P. GIEFER

AIRCRAFT

Filed Dec. 3, 1925

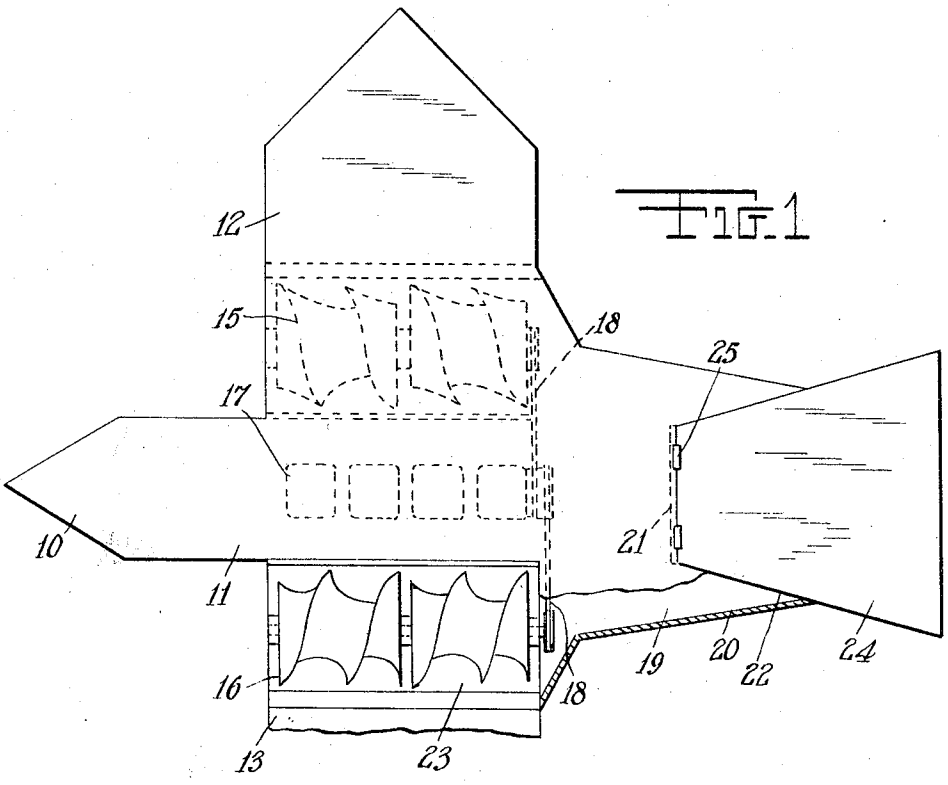

FIG. 1

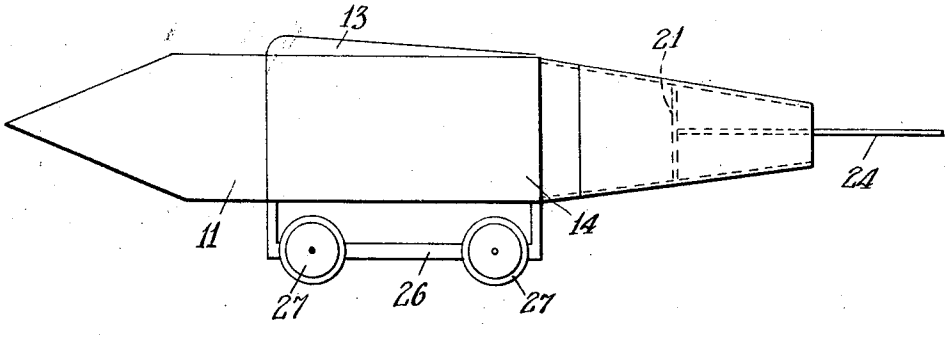

FIG. 2

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UNITED STATES PATENT OFFICE.

PHILIP GIEFER, OF FIELDING, MONTANA.

AIRCRAFT.

Application filed December 3, 1925. Serial No. 72,931.

To all whom it may concern:

Be it known that I, PHILIP GIEFER, a citizen of the United States, residing at Fielding, in the county of Flathead and State of Montana, have invented certain new and useful Improvements in Aircraft, of which the following is a specification.

The main object of this invention is to provide a heavier than air aeroplane having a construction which eliminates the use of ailerons and rudder, and maneuvers in any direction by use of propulsion means and an elevator rudder. The aeroplane uses a pair of worms, one on each side of the fuselage, which are selectively operated from a central motor plant when deflecting the course of the ship and are simultaneously rotated when the aeroplane is on a straight-a-way course. Ascent and descent are attained by the manual manipulation of an elevator.

The above and other objects will become apparent in the description below, in which characters of reference refer to like-named parts in the drawing.

Referring briefly to the drawing, Figure 1 is a top plan view of the aeroplane, showing part thereof in section to illustrate the position and construction of the propulsion worms.

Figure 2 is a side elevational view of Figure 1.

Referring in detail to the drawing, the numeral 10 indicates the pyramidal nose of the fuselage body 11 which is fashioned in this manner to give perfect stream-line effect. A pair of sustaining planes 12 and 13, extend from opposite sides of the fuselage. The aeroplane is of the monoplane type and is so constructed as to be supported by a single pair of fixed planes in flight.

A housing 14 is suspended from each one of the sustaining planes and is provided with a stream-lined outline so as to decrease the air resistance to a minimum. The housing under the sustaining plane 12 has a relatively large hollow worm 15, with a right hand pitch, mounted rotatably therein. In the housing under the opposite plane 11, an additional worm 16 with a left hand pitch is rotatably housed and is adapted to rotate in a counter-clockwise direction while the opposite worm 15 rotates in a clockwise direction. Within the body of the fuselage 11, between the sustaining planes, a combustion engine 17, or other suitable means of motive power, is mounted. The combustion engine may be provided with a drive shaft whose rotation is communicated to the worms 15 and 16 by belts 18.

These wind tunnels communicate at their rear ends with a hollow chamber 19. This chamber is closed at its side by walls 20 and a double mouth is formed at the rear of the chamber by a wall 21. The mouths 22 face each other and are adapted to guide air passing from the wind tunnels 23 upon the surface of an elevator rudder 24, which is pivoted to the wall 21 on hinges 25.

The fuselage body 11 is mounted on a frame work 26, which is supported on wheels 27 so as to make the entire aeroplane mobile on a traction surface.

The aeroplane illustrated in this application eliminates the use of the vertical rudder for maneuvering direction. The motive power plant 17 transmits rotation to the worms 15 and 16 thru means of the belts 18. The worms rotate in opposite directions to each other, that is, in a counter-clockwise and in a clockwise direction, and draw the plane thru the air, acting on the principle of a screw. Rotation of these worms is so controlled that they may be selectively rotated so as to be capable of directional steering. When one of these worms is rotating, and the other stopped, the aeroplane will describe a circle toward the worm which is stopped, and in this manner, change of direction is accomplished. The air stream which passes thru the chamber 19 from the wind tunnels 23, in which the worms 15 and 16 are situated, passes outwardly thru the mouths 22 and is deflected upon the upper and lower surfaces of the elevator rudder 24. Manipulation of this rudder in which the air stream maneuvers the ship into an ascending or descending plane, and by employing this air stream, the ascent and descent is more effectively controlled and more quickly responds to moving of the elevator.

I claim:—

1. An aeroplane comprising a stream-line fuselage, sustaining planes extending in opposite directions from the fuselage, a housing beneath each plane forming a wind tunnel, a worm rotatably mounted in each housing, said worms being adapted to rotate

in opposite directions, an elevator rudder rearward of the worms, walls on said aeroplane forming a chamber communicating with the wind tunnels, said chamber being open at the rear to guide the air stream from the tunnels into contact with the elevator rudder, said chamber being closed at the rear by a wall, the elevator rudder being hingedly mounted to said wall, and mouths at the rear of said chamber projecting above and below the hinged portion of the elevator rudder for guiding the air stream upon the surface of said rudder.

2. An aeroplane comprising a fuselage, sustaining planes for said fuselage, a housing beneath each plane providing a wind tunnel, a worm in each housing, an elevator rudder mounted rearwardly of the wind tunnels, a rearward tapering chamber communicating with said wind tunnels, a vertical wall formed at the rear of said chamber, said wall pivotally supporting the elevator rudder.

3. An aeroplane comprising a fuselage, sustaining planes for said fuselage, a housing beneath each plane providing a wind tunnel, a worm in each housing, an elevator rudder mounted rearwardly of the wind tunnels, a rearward tapering chamber communicating with said wind tunnels, a vertical wall formed at the rear of said chamber, said wall pivotally supporting the elevator rudder, said wall being positioned intermediate the width of the chamber, the chamber being open on each side of the wall forming a pair of mouths, said mouths facing each other and adapted to lead the air stream from the wind tunnel to the upper and lower surface of the elevator rudder.

In testimony whereof I affix my signature.

PHILIP GIEFER.