

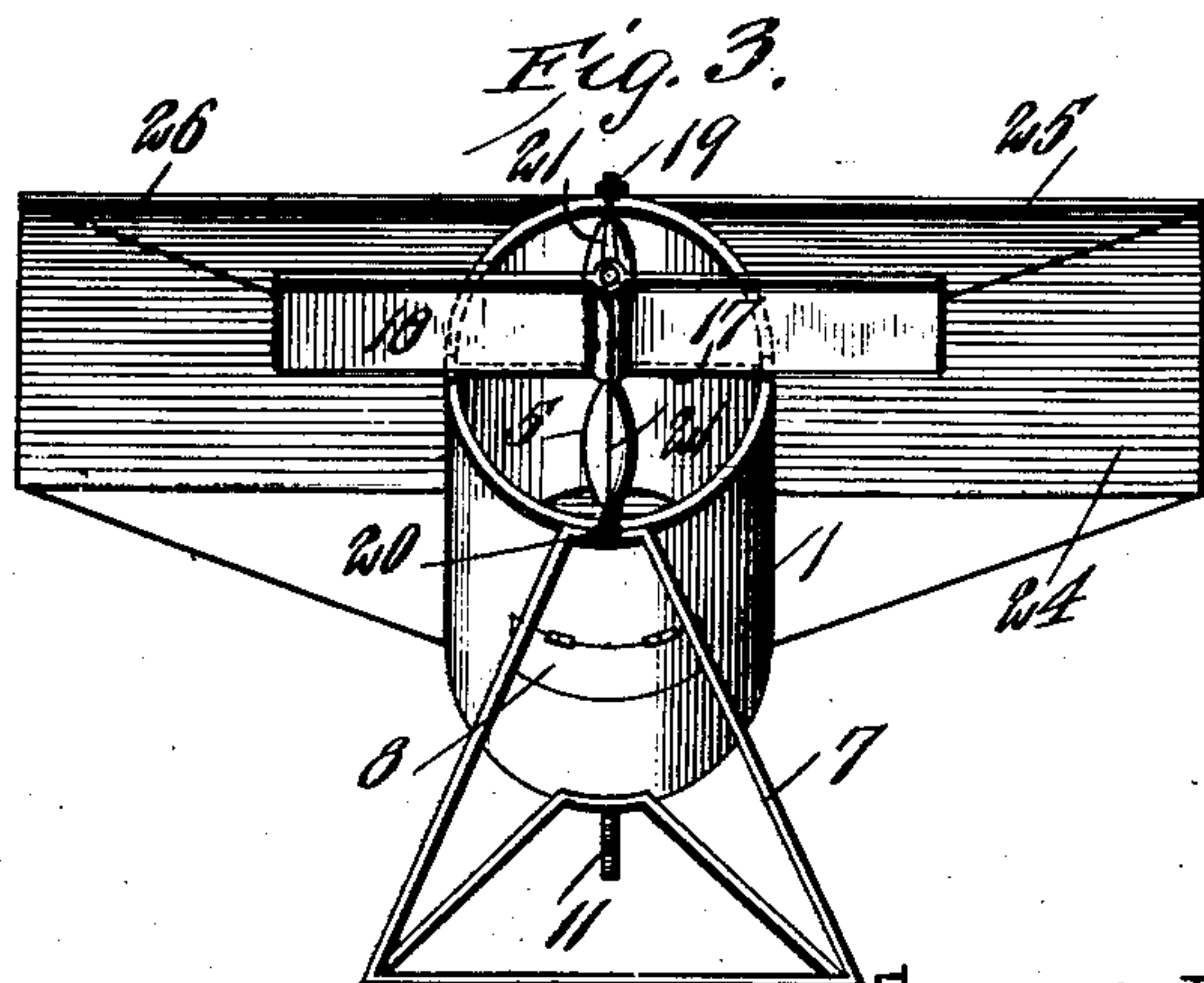
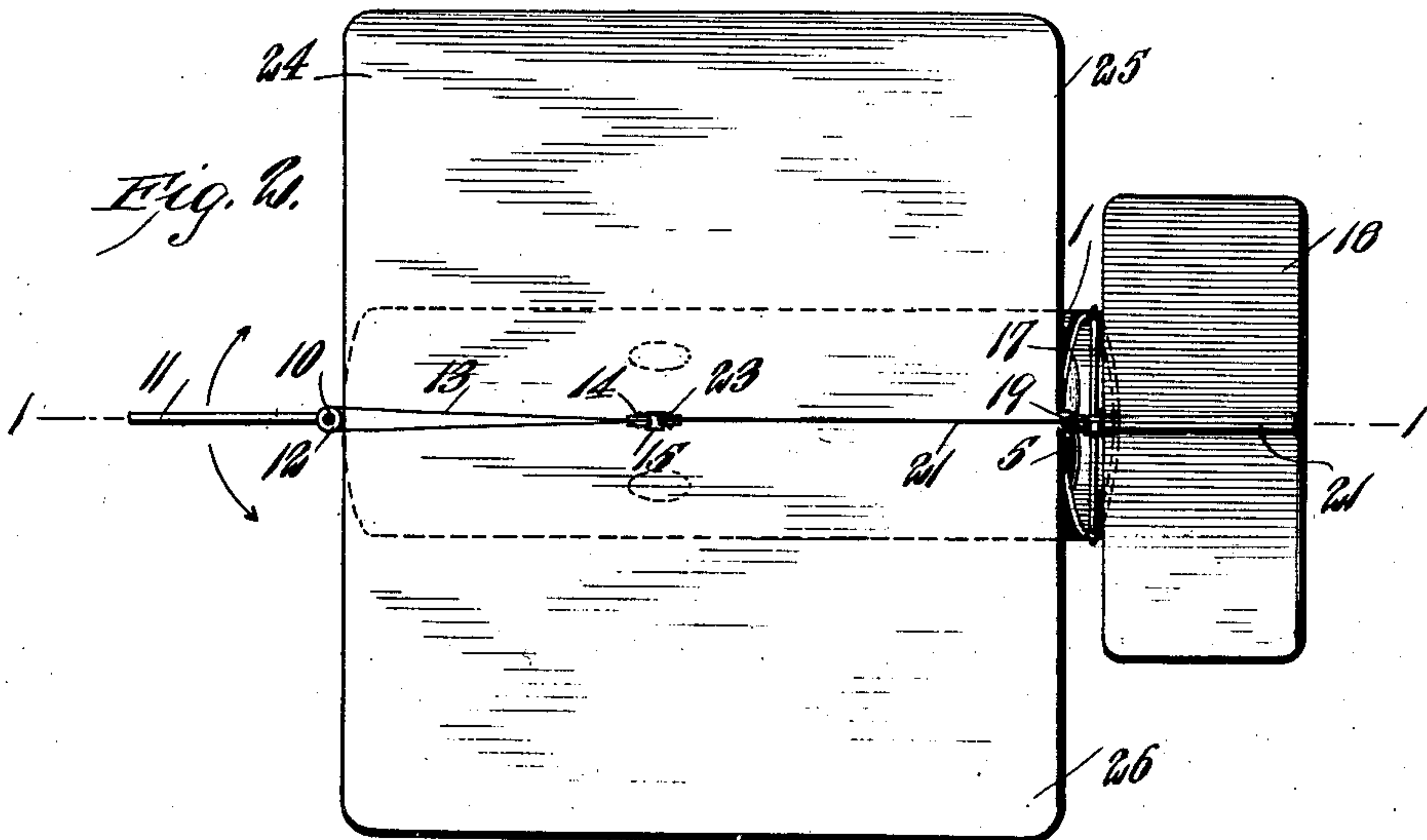
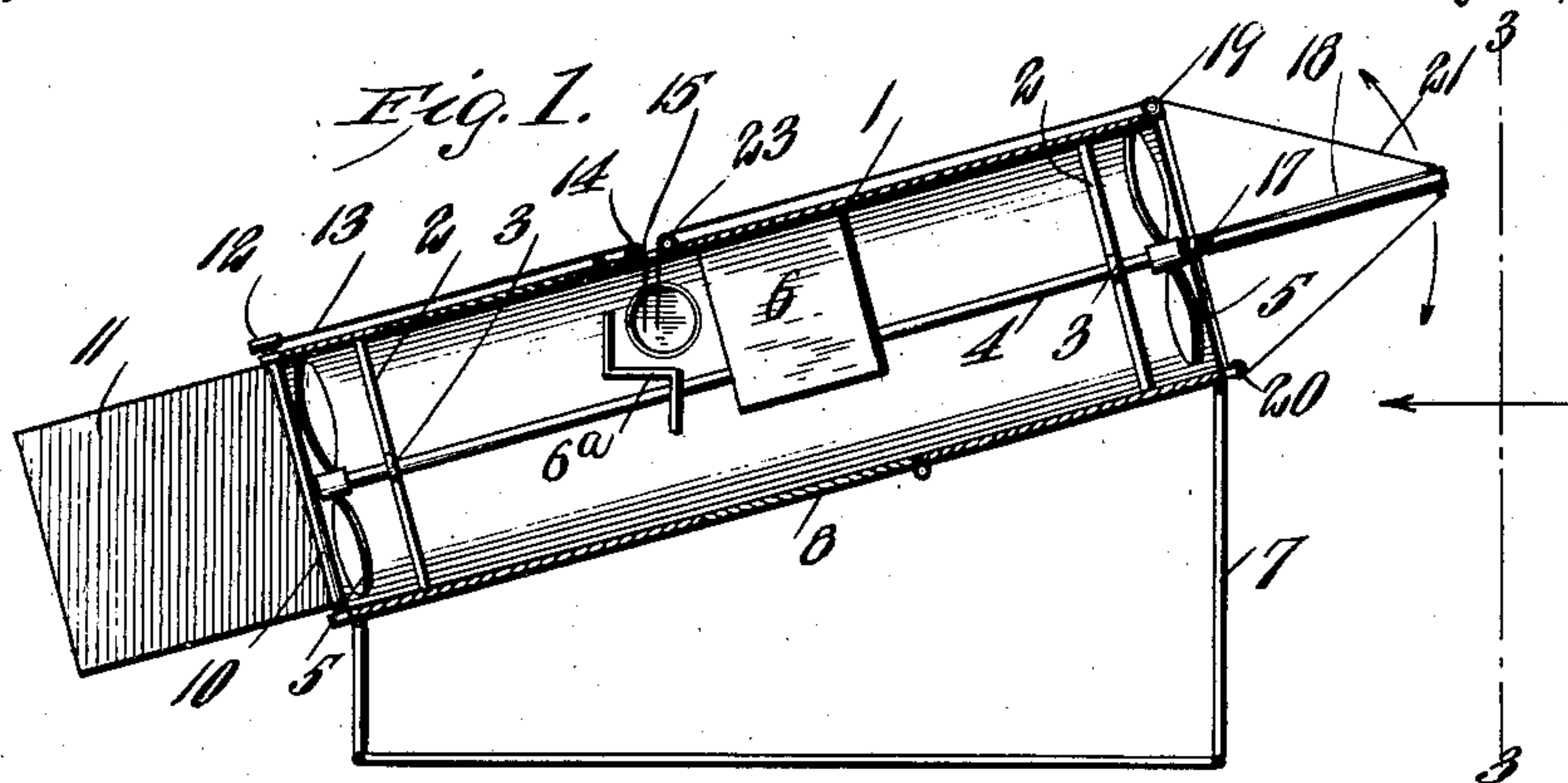
C. J. BERTHEL.

AIR SHIP.

APPLICATION FILED NOV. 13, 1908.

929,378.

Patented July 27, 1909.



WITNESSES  
C. M. Callaghan  
C. E. Tramor

INVENTOR  
CHARLES J. BERTHEL  
BY Munn & Co.

ATTORNEYS



# UNITED STATES PATENT OFFICE.

CHARLS JOHN BERTHEL, OF PINETOWN, NORTH CAROLINA.

## AIR-SHIP.

No. 929,378.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed November 13, 1908. Serial No. 462,425.

*To all whom it may concern:*

Be it known that I, CHARLS J. BERTHEL, a subject of the Emperor of Germany, and a resident of Pinetown, in the county of Beaufort and State of North Carolina, have invented certain new and useful Improvements in Air-Ships, of which the following is a specification.

My invention is an improvement in air ships and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof Figure 1 is a section on the line 1—1 of Fig. 2. Fig. 2 is a plan view, and Fig. 3 is a view looking in the direction of the arrow in Fig. 1.

The present embodiment of my invention comprises a tube 1, open at each end, and provided adjacent to each end with a cross bar 2, having a bearing 3, in which is journaled a shaft 4. The shaft 4 is provided at each end within the tube with a propeller 5, and a suitable motor 6 is supported within the tube, and is connected with the shaft. The tube is provided with a seat 6<sup>a</sup>, for the aviator, and with runners 7 on its lower side, upon which it may rest when not in flight. The tube is also provided in its upper and under sides with doors 8, and upon each side of the seat with openings 9, normally closed by a transparent covering. Near the rear end of the tube and transversely thereof, is journaled a shaft 10, with which is connected a rudder 11, and the upper end of the shaft is provided with a pulley 12, over which passes a cord 13, the ends of the cord extending over a second pulley 14, and through an opening 15 in the top of the tube to a point adjacent to the aviator.

At the front end of the tube is arranged a horizontal shaft 17, with which is connected a front rudder 18. A double pulley 19 is journaled above the shaft 17 and a pulley 20 is journaled below, and cords 21 extend from the front of the rudder, and around the pulleys 19, 20, and over a pulley 23 through the opening 15 to a point adjacent the seat of the aviator. A plane 24 of suitable size and material is connected with the upper surface of the tube, and extends upon each side thereof, as at 25, 26 forming wings for steadying and supporting the tube.

It will be observed that when the ship is not in flight, the tube takes an inclined position as shown in Figs. 1 and 3, with the

front end elevated. When the motor is started and the propellers rotate, the machine will be lifted, and will move upwardly on an inclined plane, the rising and falling movement being governed by the rudder 18, which is operated through the cords 21. The ship is guided in a horizontal plane by the rudder 11.

It will be seen that the wings of the aeroplane spread a greater distance transversely to the line of flight than the fore and aft distance. This follows the analogy of the wings of a bird and is founded upon a true principle of physics essential to all successful aeroplanes, which secures a short transverse impact of the wings upon the relatively still air, whose inertia gives the resultant upward pressure to buoy up the aeroplane and allows the quick clearance of the air in the rear. It will also be seen that the fore and aft dimensions of the wings are exactly equal to the length of the cylinder, the edge of the aeroplane wings in front terminating at the front edge of the cylinder, and the edge of the aeroplane wings in the rear terminating at the rear edge of the cylinder and that the distance from the tip of one wing to the tip of the other is greater than the length of the cylinder or tube.

I claim:

1. A device of the class described comprising an open ended tube provided with lateral wings, a shaft journaled therein at the longitudinal center thereof, propellers at each end of the shaft within the tube, a motor within the tube and connected to the shaft, a substantially vertical rudder at one end of the tube, a substantially horizontal rudder at the other end, and means for operating said rudders from the interior of the tube.

2. An airship of the class described comprising an open ended tube provided with lateral wings, a propeller in the tube, a substantially vertical rudder at one end, a horizontal rudder at the other end, and means for operating said rudders from the interior of the tube.

3. In an airship, a tube having lateral wings, propelling mechanism within the tube, guiding means at each end of the tube, and means for operating said guiding means from within the tube.

4. An aeroplane comprising a central tube of circular cross section having two rigidly attached wings extending from opposite sides of the same, the wings having their



greatest dimension at right angles to the longitudinal axis of the tube and of a greater length than the tube.

5     5. An aeroplane comprising a central tube  
of circular cross section having two rigidly  
attached wings extending from opposite sides  
of the same, the wings having their greatest  
dimension at right angles to the longitudinal  
axis of the tube and of greater length than  
10 the tube and said tube being formed as a true  
cylinder with both ends open.

6. An aeroplane comprising a central tube  
of circular cross section having two wings  
extending from opposite sides of the same,  
15 the wings having their greatest dimension at  
right angles to the longitudinal axis of the  
tube and said tube being formed as a true

cylinder with both ends open, the circular  
front end terminating at the front edge of  
the aeroplane wings and the circular rear end  
terminating at the rear edge of the aeroplane  
wings. 20

7. An aeroplane comprising a central tube  
of circular cross section having two wings ex-  
tending from opposite sides of the same, said  
tube being formed as a true cylinder with  
both ends open the circular front end termi-  
nating at the front edge of the aeroplane  
wings and the circular rear end terminating  
at the rear edge of the aeroplane wings. 25

CHARLS JOHN BERTHEL.

Witnesses:

L. A. SQUIRES,

J. E. SLATER.