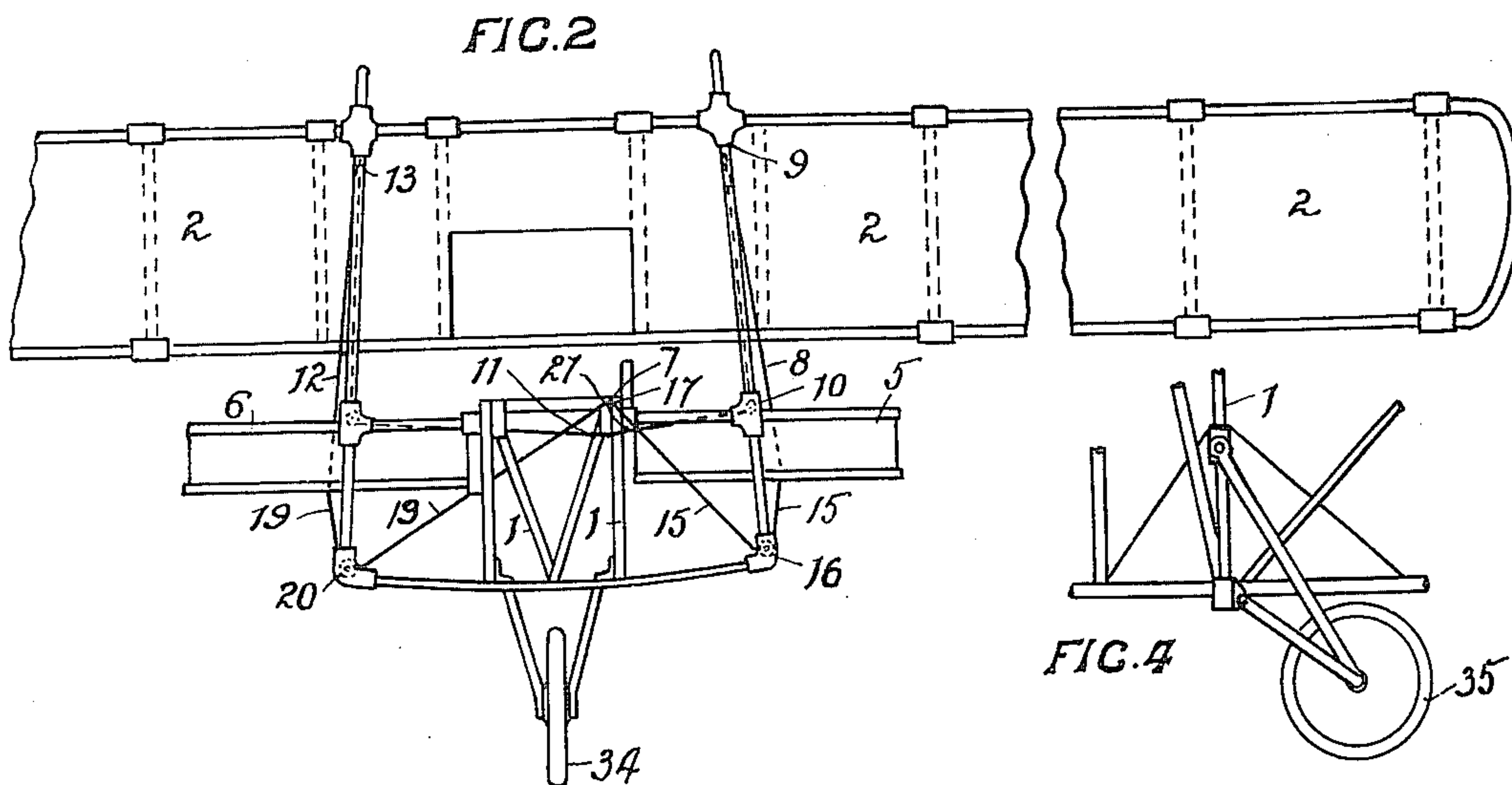
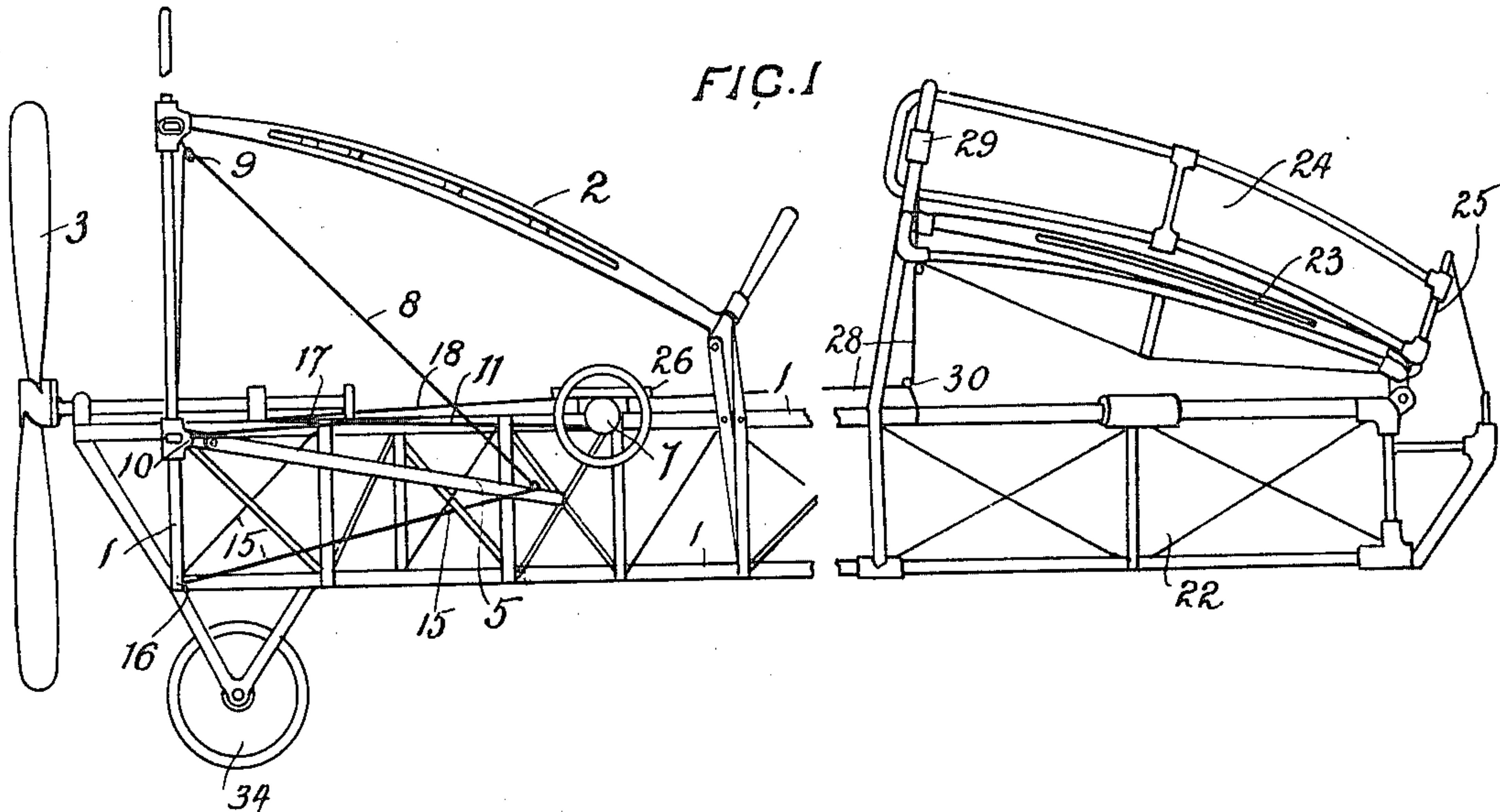


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AEROPLANE.
APPLICATION FILED SEPT. 1, 1910.

985,375.

Patented Feb. 28, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

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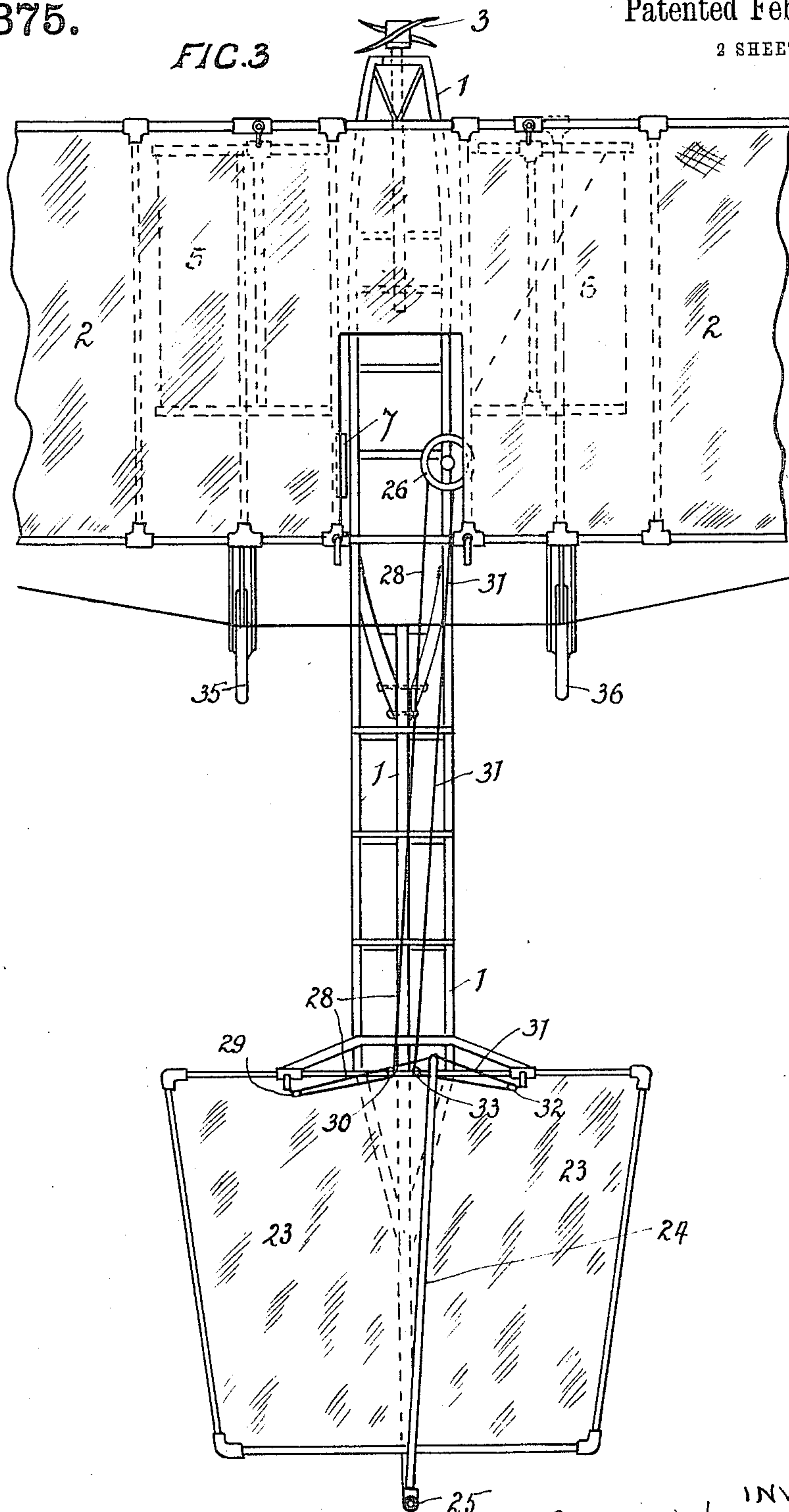
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AEROPLANE.

985,375.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed September 1, 1910. Serial No. 580,128.

To all whom it may concern:

Be it known that I, ARTHUR WALDEMAR SCHAEF, a subject of the King of Great Britain, residing at Wellington, New Zealand, have invented a new and useful Improvement in Aeroplanes; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to aeroplanes and flying machines and has for its objects to provide a more effective arrangement of planes whereby increased buoyancy is obtained with a moderate area of planes, to provide means for lifting the machine by means of its propellers with little or no preliminary run along the ground, to increase the efficiency of the rudder, and to prevent or lessen inclination of the machine when turning during flight. These objects are attained by arranging the planes in a compact form, a main plane being located at the front of the machine and subsidiary planes below and also at the rear thereof. The air passing below and beyond the end of the main plane reaches a rear plane of smaller dimensions and set at a higher level than the main plane, thereby giving buoyancy to the rear part of the machine. The main plane is connected to the rear plane by a deep vertical web or backbone consisting of a framework across which canvas or the like is stretched. Openings are left between the top of the vertical web and the main and rear planes to allow air to pass through and relieve the pressure of air upon the web.

The propeller located at the front of the machine is driven by a motor and gear of any ordinary construction, and the air driven rearwardly by the propeller acts upon an adjustable controlling plane below the main plane. Means are provided for altering the angle of this controlling plane, so that the air from the propeller will lift or depress the front of the machine at the will of the aviator. When preparing for flight, the aviator moves the free end of the controlling plane downward to allow the air from the propeller to strike the lower surface thereof, and lift the front of the machine, and when he desires to descend, he alters the angle of this said plane to allow the air to play upon the upper surface or upon both upper and lower surfaces thereof simultaneously.

The rear plane is fixed across the back end of the vertical web of the machine and above it the rudder is mounted. This rudder con-

sists of a vertical frame, covered with cloth, that is pivotally supported at its rear end upon a post or pillar extending upward above the rear plane's surface, so that the rudder thus extends forwardly above the rear plane. Means are provided whereby this rudder may be turned horizontally in either direction to guide the machine laterally in its flight. When the rudder is turned to right or left, the forepart of the rear plane toward which the rudder is turned is depressed and the other forepart is elevated to assist the rudder in turning the machine and to keep it on an even keel. The operating of the rudder and the said foreparts are effected simultaneously by cords and levers.

Referring to the accompanying drawings: Figure 1 is a side, and Fig. 2, a part front elevation, Fig. 3, is a plan corresponding to Fig. 1. Fig. 4, is a side elevation showing one of the traveling wheels.

The framework 1 forming the body of the machine is made of the material usually employed in the construction of aeroplanes, and carries the great plane 2 which extends across the front of the machine. The propeller 3 is mounted in bearings on the framework and driven by a motor located in any convenient position to be handy to the aviator.

The controlling plane for governing the vertical flight of the machine is for convenience made in two sections 5 and 6 arranged one on each side of the central vertical web of the machine so as thereby to form side wings below the main plane 2. The planes 5 and 6 are hinged at their forward ends upon the frame of the machine and are designed to be turned upon said hinges so as to assume the desired angle for directing the flight of the machine in the vertical plane. The planes 5 and 6 are simultaneously raised or depressed by wire ropes which are led from their outer ends around guide pulleys to a drum 7 mounted on the frame within reach of the aviator. The rope 8 is secured to the outer edge of the plane 5 carried over a guide pulley 9 thence around a guide pulley 10 and secured to a main lead rope 11 which is coiled around the drum 7. A corresponding rope 12 is led from the outer edge of the plane 6 over a pulley 13 around a guide pulley 14 and its end secured to the main lead rope 11. The rope 15 is secured to the end of the plane 5, car-

ried around guide pulleys 16 and 17, and secured to a main lead rope 18. The rope 19 is secured to the end of plane 6, carried around guide pulleys 20 and 21, and secured to the main lead rope 18. The leading ropes 11 and 18 are coiled in opposite directions around the drum 7, so that when the drum is turned in one direction or the other, the two planes are simultaneously raised or depressed to the same angle. The framework of the machine is so constructed that when covered with cloth it forms a fin 22.

The rear plane 23 is arranged as shown, and the rudder plane 24 is covered with cloth and is hinged at 25 at the end of the plane 23 in such manner that it can be turned at the required angle for steering the machine.

The rudder plane is operated by wire ropes led around guide pulleys to a drum 26 in the following manner. The rope 28 is secured to the forward end of the rudder, passes around the guide pulleys 29 and 30, and is led to the drum 26. The rope 31 is also secured to the forward end of the rudder, passes around guide pulleys 32 and 33, and is coiled around drum 26 in the direc-

tion opposite to that of the preceding rope. By this method, when the drum is turned by the aviator, the rudder plane is turned at the desired angle relatively to the machine. The machine, when on the ground, is carried on the pneumatic tired wheels 34, 35 and 36, the bracket for carrying the wheels 35 and 36 being clearly shown in Fig. 4.

What I do claim as my invention, and desire to secure by Letters Patent is:—

In an aeroplane, the combination with the main frame thereof, of a horizontal rear plane pivoted at its rear end to the main frame and overhanging the same for elevation and depression, and a vertical rudder plane disposed above said rear plane and pivoted at its rear to the rear part thereof for lateral shifting in relation to said rear plane and being adapted to move up or down with the rear plane.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

ARTHUR WALDEMAR SCHAEF.

Witnesses:

W. ALEXANDER,
M. E. BROWN.