

1,034.655.

P. D. SMITH.
AEROPLANE.
APPLICATION FILED NOV. 13, 1911.

Patented Aug. 6, 1912.
2 SHEETS—SHEET 1.

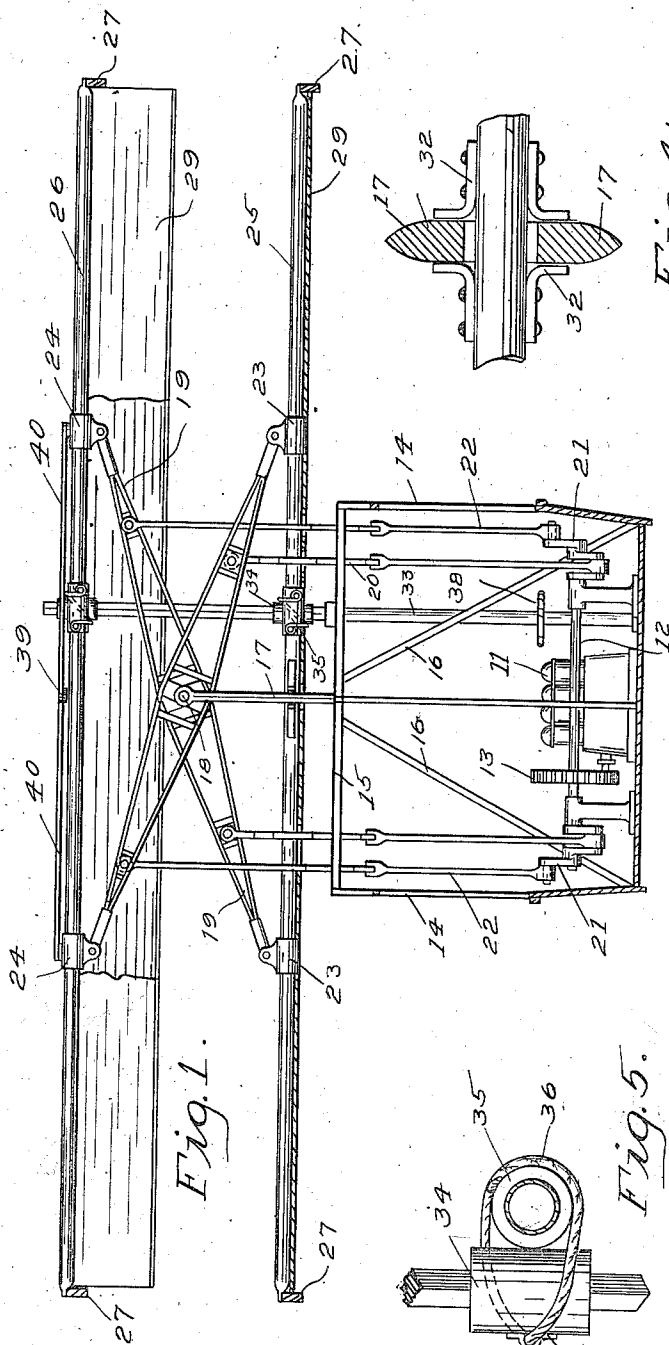


Fig. 1.

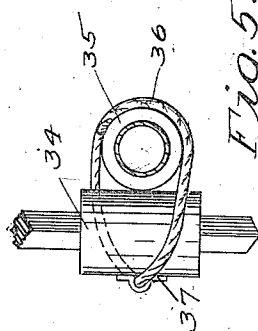


Fig. 5.

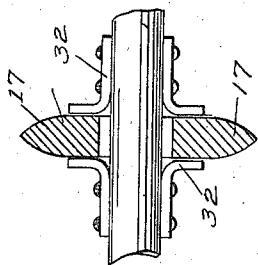


Fig. 4.

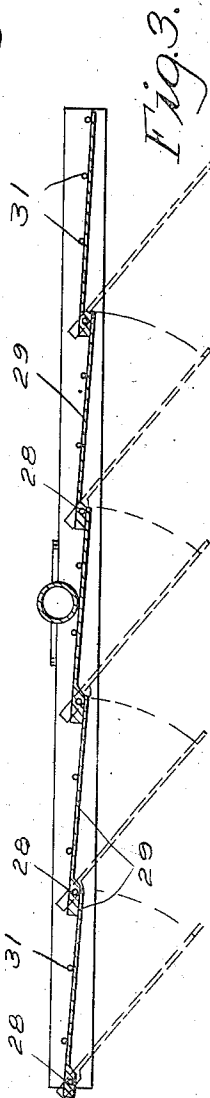


Fig. 3.

Witnesses
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2 SHEETS-SHEET 2.

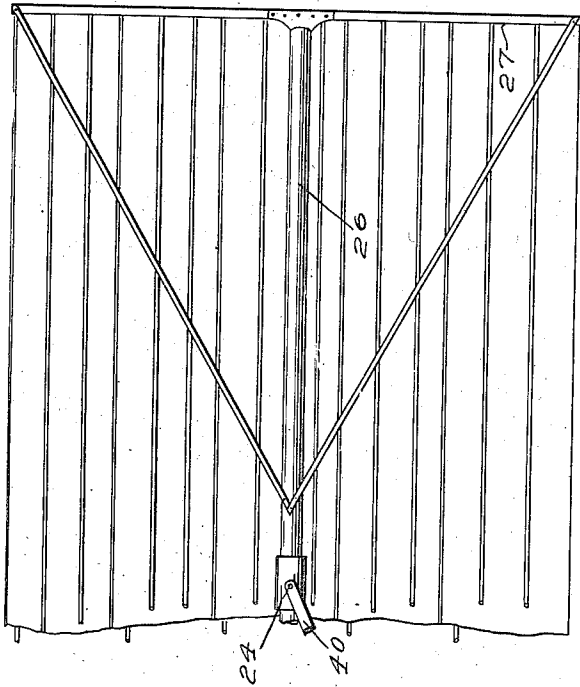


Fig. 7.

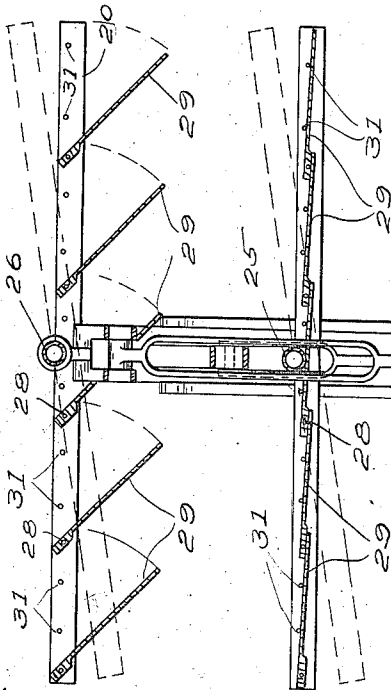


Fig. 2.

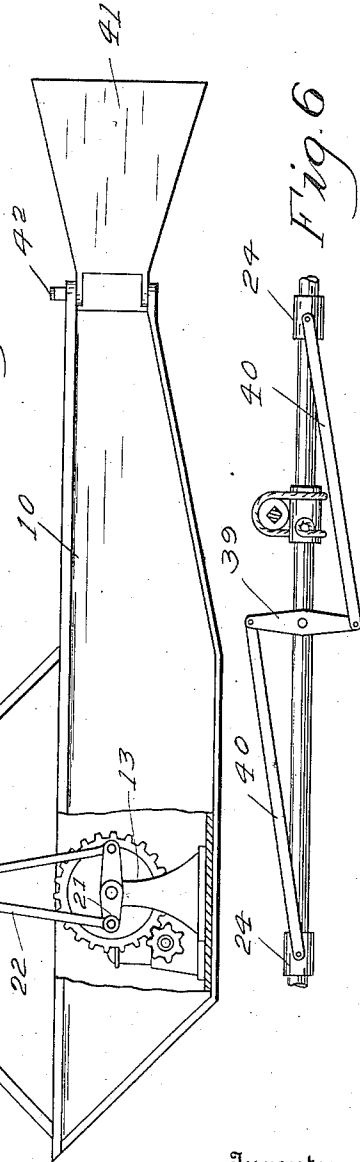


Fig. 6.

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UNITED STATES PATENT OFFICE.

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AEROPLANE.

1,034,655.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed November 13, 1911. Serial No. 659,949.

To all whom it may concern:

Be it known that I, PUTNAM D. SMITH, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification.

This invention relates to aeroplanes.

The principal object of the invention is to provide a new method for the propulsion of aeroplanes which will produce greater speed with a less expenditure of motive power than the present type while at the same time adding to the safety and dirigibility.

With the above and other objects in view the invention consists of certain novel details of construction, and arrangements of parts as will be hereinafter fully described and claimed.

Referring to the accompanying drawings: Figure 1 is a transverse section through the aeroplane constructed in accordance with this invention. Fig. 2 is a side elevation of such an aeroplane, certain parts being broken away better to show the invention. Fig. 3 is a fore and aft section through one of the planes. Fig. 4 is a detail of certain guides used in connection with the invention. Fig. 5 is a detail of a certain device used in connection with altering the inclination of the planes. Fig. 6 is a plan view of certain mechanism used in connection with the upper plane. Fig. 7 is a plan view of a portion of the upper plane.

The aeroplane is provided with an operator's station in the form of a boat like body 10 in which is mounted a motor 11 which is geared to a shaft 12 by means of gearing 13. Extending upward from the body are standards 14 which are inclined so that they meet at their upper ends in pairs, the apex of each pair being connected by a cross bar 15. Other standards 16 are likewise provided as braces for the device. Extending upward from the cross bar is a fork 17 carrying eyes at its upper ends which hold a pin 18 whereon oscillate the walking beams 19. Depending from the walking beams 19 adjacent their ends are links 20 which pass through and are guided by the cross bar 15. These links are connected to cranks 21 on the crank shaft 12 by means of

connecting rods 22. The cranks are arranged in pairs at 180° and the opposite ends of the connecting rods are connected to these cranks in such a manner that when the cranks are in the position shown in Fig. 1 the upper end of each walking beam will be connected to the upper crank. Suspended from the lower ends of each of the walking beams is a cuff 23, while similar cuffs 24 are pivoted to the upper ends of the walking beams and extend upward therefrom. Passing through the cuffs 23 is a back bone 25 while the cuffs 24 receive a back bone 26. These back bones carry at their outer ends frame bars 27 which are connected by means of rods 28 whereon are pivoted thin vanes 29 which are so arranged that they overlap each other, the rods 28 being closely adjacent one end and each vane being counter-weighted as at 30 to cause it more readily to assume the position shown in full lines in Fig. 3. Other wires likewise connect the frame bars 27, these other wires being placed across the frame bars to prevent breakage of the vanes between their pivot points and the place where they overlap the next adjacent vane. The rear-most vane cannot of course overlap any other vane at its rear end and an additional wire 31 extends across this vane adjacent its rear edge. The back bone 25 is provided on each side of the fork 17 with guide plates 32 so that this back bone has no tendency to slip through the cuffs 23 bodily either to the right or left.

Extending upward from the floor of the car or body of the ship 10 is a shaft 33 having a squared upper end whereon are slidably mounted sleeves 34. Secured to each of the back bones by any suitable means is a sleeve 35 and wrapped around the sleeves 34 and 35 is a flexible cord 36 which has its ends secured to the sleeve 35 while its central portion is secured to the sleeve 34 by a clip 37. By this means when the sleeve 34 is rotated by turning the shaft 33 the sleeve 35 will likewise be rotated and thus change the inclination of the planes by the rotation of the back bone. This shaft 33 is provided with a suitable steering wheel 38 for the purpose of so rotating the same. Pivoted centrally of its length to the back bone 26 is a lever 39 which is connected by links 40 to the cuffs

24 so that these cuffs are compelled to move in opposite directions simultaneously.

In the operation of the device the engine being set in motion the walking beams are caused to oscillate on the pin 8. As the upper ends of these beams descend they, of course, pull down the upper plane, the cuffs sliding along the back bone 26 to permit of this motion and at the same time the cuffs 23 ascend and slide outward on the back bone 25. The reverse of this movement takes place as the upper plane ascends and the lower plane descends and as soon as the upper plane begins to descend the vanes 29 close as seen in full lines in Fig. 3 while the vanes of the other plane open as seen in dotted lines in that figure. At the rapid reciprocation of these planes the air ship is lifted bodily into the air and in the event of accident to the engine the planes both close and support the ship so that it can be brought safely to the ground. For the purpose of moving forward the hand wheel 28 is turned in such direction as to incline the planes as can be seen by reference to the dotted lines in Fig. 2. When either of the planes descend the resultant of the force exerted upon the air by the descending plane will tend to force the air out from the rear edge of said descending plane. The reaction from this effect will drive the aeroplane forward and it will be obvious that the steeper the angle employed the greater will be the tendency to move forward and the less to move up in the air as the action is a combination of beating and gliding. When desiring to descend because of breakage of the engine or any other cause which stops the machinery the planes may be tilted forward in this manner and the vessel will glide gently to the ground. For the purpose of steering the aeroplane a rudder 41 is provided which may be operated in any preferred manner through the medium of the post 42, the manner of operating the rudder not being deemed necessary to be here shown as forming no part of my invention.

There has thus been provided a simple

and efficient device of the kind described and for the purpose specified.

Having thus described the invention, what is claimed as new, is:

1. In an aeroplane, a body, walking beams carried by said body, means for oscillating said walking beams arranged to constantly hold one end of each beam higher than the other end of the same beam, cuffs pivoted to the ends of said beams, bars constituting back bones slidably mounted in said cuffs, means to hold the centers of said bars constantly central between the cuffs, planes carried by said back bone each comprising a plurality of downwardly opening vanes each hinged adjacent one edge, and means to rotate said back bones simultaneously.

2. In an aeroplane, a body, walking beams carried by said body, means for oscillating said walking beams arranged to constantly hold one end of each beam higher than the other end of the same beam, cuffs pivoted to the ends of said beams, bars constituting back bones slidably mounted in said cuffs, means to hold the centers of said bars constantly centrally between the cuffs, planes carried by said back bones, each comprising a plurality of downwardly opening vanes each hinged adjacent one edge, and means to rotate said back bones simultaneously, said means comprising sleeves fixed on the back bones, a shaft extending vertically upward adjacent said back bones, and having a squared portion adjacent each back bone, sleeves having squared openings slidable on said shaft, flexible members each having its ends secured to the sleeves on the back bones and its center wrapped spirally around and secured to the respective sleeve on the shaft, and a hand wheel for rotating said shaft.

In testimony whereof I affix my signature in presence of two witnesses.

PUTNAM D. SMITH.

Witnesses:

H. C. SCHROEDER,
W. A. STOCK.