Nov. 12, 1929. M. F. TREVIÑO 1,735,662

MINIATURE AEROPLANE

Filed Jan. 9, 1928

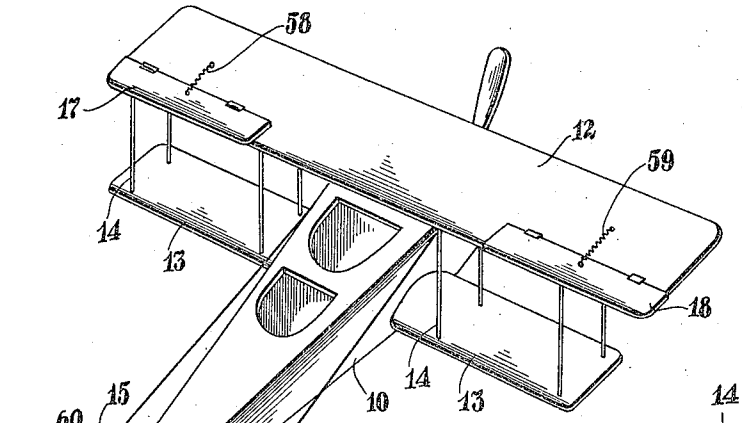


Fig. 1

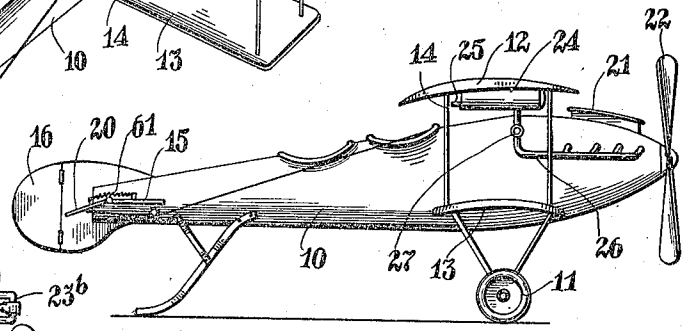


Fig. 2.

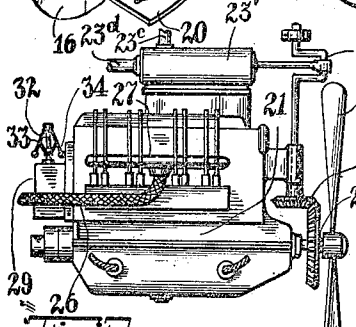


Fig. 3.

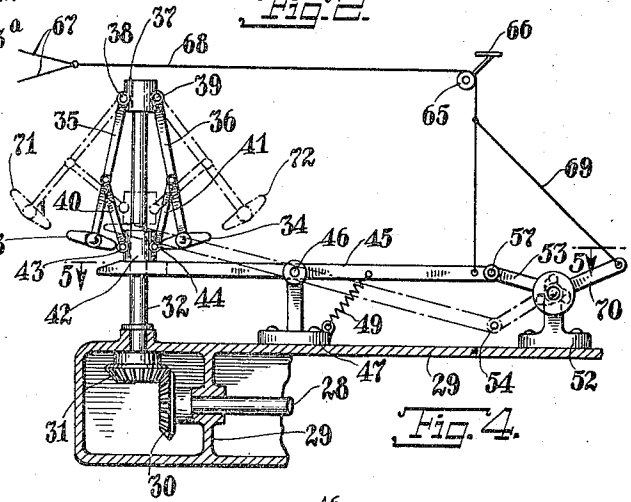


Fig. 4.

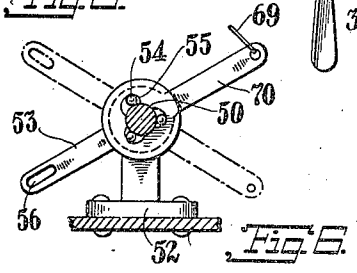


Fig. 6.

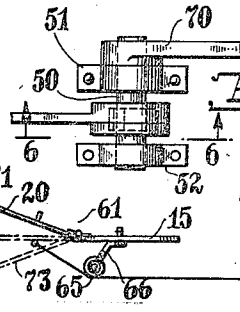


Fig. 7.

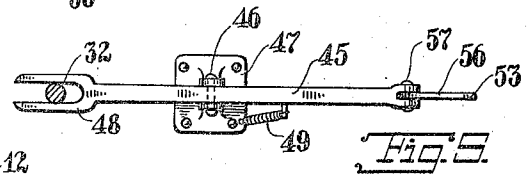


Fig. 5.

Fig. 8.

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UNITED STATES PATENT OFFICE

MANUEL FALCON TREVINO, OF CRYSTAL CITY, TEXAS

MINIATURE AEROPLANE

Application filed January 9, 1928. Serial No. 245,546.

This invention relates to a miniature aeroplane especially adapted for amusement purposes or for advertising or publicity purposes as may be desired.

The object of the invention is to provide a self propelled aeroplane embodying a means of ascending and descending, which will permit my improved aeroplane to be navigated through the air automatically.

A further object of the invention is to provide a miniature aeroplane of novel construction and arrangement of parts, embodying certain new features hereinafter more fully described, claimed and illustrated in the accompanying drawing.

Fig. 1 is a perspective view of my improved miniature aeroplane as same would appear when in flight.

Fig. 2 is a side elevational view thereof.

Fig. 3 is an enlarged side elevational view of the motor embodied therein, for the purpose of propelling my improved machine.

Fig. 4 is a side elevational view of the elevator mchanism provided for the purpose of ascending.

Fig. 5 is a transverse sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a similar sectional view taken on the line 6—6 of Fig. 7.

Fig. 7 is a top plan view of the descending mechanism as embodied in my improved device.

Fig. 8 is a schematic side elevational view of the ailerons and elevators shown connected with a flexible control.

In Figs. 1 and 2 of the accompanying drawing, I have shown a miniature aeroplane of the biplane, tractor type, comprising a fuselage 10 or body, landing gear 11, upper and lower wings 12 and 13, struts 14, stabilizers 15 and rudder 16. The ailerons 17 and 18 are hinged to the upper wing 12 in the usual manner. The elevators 19 and 20 are similarly hinged to the stabilizers 15. The above mentioned elements are those of an ordinary aeroplane of the type mentioned. It is understood that I do not necessarily limit the use of my invention to the particular type of aeroplane above described, but to all classes and types of aeroplanes, or heavier than air machines, such as are commonly used for flying purposes.

The motor 21, preferably of the four cylinder, four cycle type is mounted in the forward portion of the fuselage 10, and is operatively connected to the usual propeller 22, preferably secured to the forward extremity of the crank shaft 23 of the motor 21. The tank 24, of hollow cylindrical construction, adapted to hold air under pressure is mounted under the upper wing 12 and is provided with a filler cap 25, as a means of filling the said tank with compressed air. The propeller shaft 23 is connected to an air pump 23′ thru bevel gears 23^a and drives the piston thru crank 23^b. The pump is provided with the usual air inlet 23^c and outlet 23^d. The tank 24 is connected by means of the flexible tube 26 to the intake manifold 27 of the motor 21. A valve 27 is interposed in the tube 26, for the purpose of regulating the air supply to the motor 21. The above described construction is such as will permit the compressed air in the tank 24 to operate the motor 21, for the purpose of rotating the propeller, as a means of propelling my improved miniature aeroplane.

The shaft 28 is rotatively mounted in the crank case 29 of the motor 21, and is operatively connected thereto, preferably to the crank shaft or cam shaft of the motor 21. The bevel gear 30 is secured to the shaft 28 and meshes with the bevel pinion 31, secured to the governor shaft 32, which extends vertically upwardly through an aperture formed in the crank case 29. The governor balls 33 and 34 are secured to the free extremities of the levers 35 and 36, respectively, pivotally secured to the head 37, of the governor shaft 32, as at 38 and 39, respectively. The rods 40 and 41, are pivotally secured to the levers 35 and 36, respectively, intermediate thereof, and are similarly secured to the collar 42, as at 43 and 44, slidably mounted on the shaft 32.

The lever 45, is pivotally mounted intermediately on the pin 46 carried in the bracket 47, secured to the crank case 29 and is provided with a forked extremity 48, adapted to extend around the shaft 32. The

forked extremity 48 of the lever 45, is held in engagement with, or in contact with the collar 42 by means of the tension spring 49.

The shaft 50 is rotatively mounted in the brackets 51 and 52 secured to the crank case 29. The lever 53 has formed therein an aperture adapted to receive the shaft 50. The rollers 54 are positioned in circumferential openings 55 formed in the lever 53, as a means of partially rotating the shaft 50, when the lever 53 is partially rotated in a clockwise direction. The latter described construction is such as will permit of the free movement of the lever 53 in counter clockwise direction. The extended extremity of the lever 53 has formed therein an elongated aperture 56, adapted to receive the pin 57, secured to the extremity of the above mentioned lever 45. The ailerons 17 and 18, and the elevators 19 and 20 are normally held in a somewhat angularly upwardly inclined position by means of the tension springs 58, 59, 60 and 61. Flexible members 62 and 63 are attached to the ailerons and to the elevators, and extend therefrom over pulleys 64 and 65 respectively carried in the brackets 66 secured to any suitable portion of my improved aeroplane. The above mentioned flexible members are secured to the flexible members 67, secured to a similar flexible member 68, which is extended over a similar pulley 65. The flexible member 68 is secured to the extremity of the above mentioned lever 45. A similar flexible member 69 is secured intermediately to the flexible member 68, and is secured to the free extremity of the lever 70, mounted on the above mentioned shaft 50.

The above described construction is such as will permit the ailerons 17 and 18, and the elevators 19 and 20, when the motor 21 is started to move downwards from normally raised positions and cause my improved aeroplane to ascend, and which will permit the governor balls 33 and 34 to assume an approximate horizontal position as shown above by the reference numerals 71 and 72 respectively, when the motor 21 attains its maximum speed. It is obvious that the latter described position of the governor balls will cause the lever 45 to pull the flexible member 68, and the above mentioned flexible members secured thereto, as a means of hinging the ailerons 17 and 18, and the elevators 19 and 20, horizontal, which will cause my improved aeroplane to assume an approximate horizontal flying position. It is further obvious that when the supply of compressed air in the tank 24 has been exhausted, that the governor balls 33 and 34, will assume their normal position which will cause the lever 53 to be partially rotated in a clockwise position, the lever 70 is similarly partially rotated in a clockwise position and will pull the flexible member 69, and the flexible members secured thereto, which will cause the ailerons 17 and 18, and the elevators 19 and 20 to assume a somewhat angularly upward position, as designated by the reference numerals, as a means of causing my improved aeroplane to descend to the ground.

While I have shown and described a preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent of the United States is as follows:—

1. In a device of the class described, a lever pivotally supported intermediate of its ends, and at one end connected with a governor so that this end moves upwards upon governor speed increases and downwards upon decreases, a flexible member connected with the other end of the said lever for connection with ailerons and elevators of the device, a second lever pivotally attached on the second mentioned end of the said lever, and mounted on a shaft and arranged for rotating the shaft in one direction, a third lever also mounted on the said shaft, and a flexible member attached on the third lever and on to the said flexible member.

2. In a device of the class described, a lever pivotally supported intermediate of its ends, and at one end connected with a governor so that this end moves upwards upon governor speed increases and downwards upon decreases, a flexible member connected with the other end of the said lever for connection with ailerons and elevators of the device, a second lever pivotally attached on the second mentioned end of the said lever, and mounted on a shaft and arranged for rotating the shaft in one direction by reason of rollers engaging in cam openings, a third lever also mounted on the said shaft, and a flexible member attached on the third lever and on to the said flexible member.

In testimony whereof I have affixed my signature.

MANUEL FALCON TREVINO.