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1,623,613

M. M. ARNDT

FLYING MACHINE

Filed Nov. 6, 1925

Fig. 1.

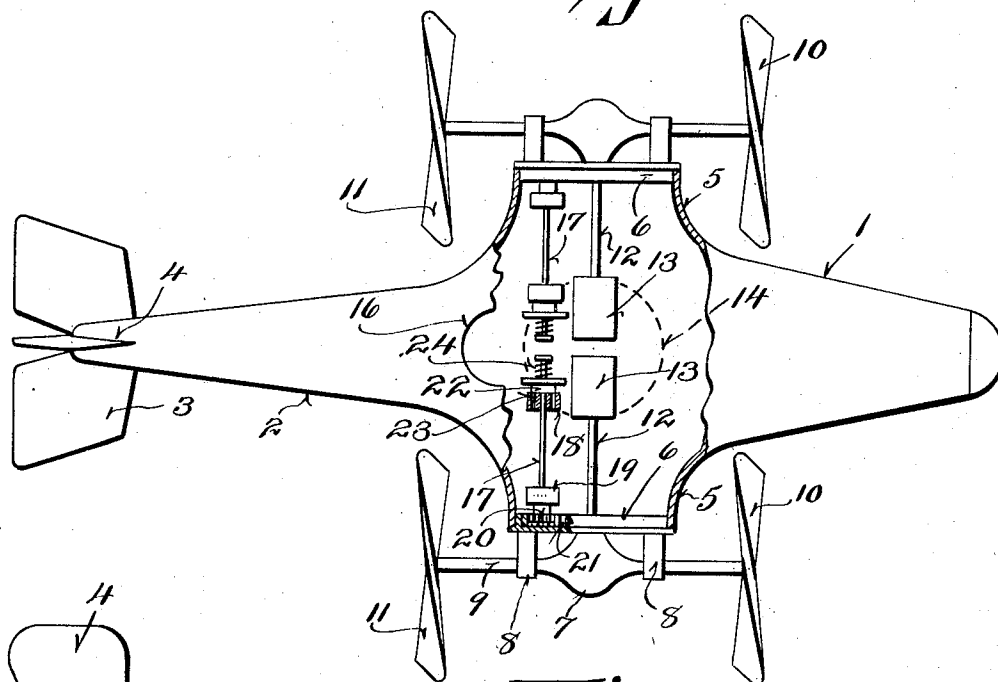


Fig. 2.

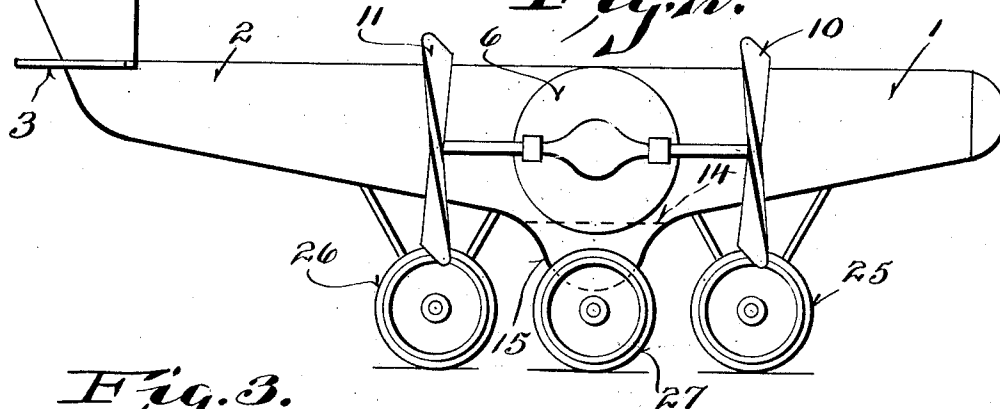


Fig. 3.

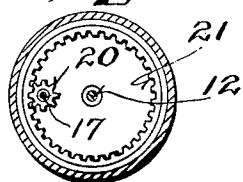
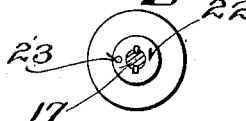


Fig. 4.



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UNITED STATES PATENT OFFICE.

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FLYING MACHINE.

Application filed November 8, 1925. Serial No. 67,283.

This invention relates to flying machines.

Objects of this invention are to provide a novel form of flying machine in which a pair of propellers are mounted on each side of the body of the machine, and may be shifted about a transverse axis through the machine while they are in operation to thus vary the angle along which the force of the propeller acts.

Further objects are to provide a novel form of flying machine in which the weight is so proportioned as to increase the stability of the machine and maintain the body portion in approximately a horizontal line during flight.

An embodiment of the invention is shown in the accompanying drawings, in which:—
Figure 1 is a plan view partly broken away of the machine.

Figure 2 is a side elevation of the machine.

Figure 3 is a detail showing the adjusting mechanism for varying the angle of the propeller shafts.

Figure 4 is a sectional view through one of the adjusting shafts.

Referring to the drawings, it will be seen that the flying machine comprises a body portion provided with a head or nose 1 and with a rearwardly projecting portion 2 provided with a tail 3 and a rudder 4. This body portion has outwardly projecting parts 5 on opposite sides. These parts 5 are tubular and carry an adjustable disk 6. The disks or heads in turn carry the housings 7 for the gears of the propeller shafts and may, if desired, carry additional supports 8 for the housing 9 of the propeller shafts to increase the rigidity of these parts. The propeller shafts carry forward and rear propellers 10 and 11 and such propellers are driven from the engine shaft 12. Upon reference to Figure 1, it will be seen that twin engines 13 are employed and are positioned symmetrically on opposite sides of and closely adjacent the vertical center line of the machine.

Further, in order to increase the stability of the machine, a weight 14 (see Figure 1) is positioned centrally of the machine and within the depressed portion 15 of the body, as shown in Figure 2. Thus, the weight 14 is positioned a material distance below the center about which the propeller shafts may be rocked.

The means for adjusting the angle of the

propeller shafts is at all times under the control of the operator as he sits in the cockpit, the opening of which is indicated by the reference character 16 in Figure 1. This adjusting mechanism comprises a pair of manually operated shafts 17 which are carried in supports 18 and 19. These shafts carry at their outer ends small pinions 20 which mesh with the internal gear 21 carried by the disk 6 for each of the shafts 7.

In order to hold the shaft 7 against inadvertent rotation, a collar 22 is splined to each of the shafts 17, as most clearly shown in Figure 4. This collar 22 carries a pin 23 which, as may be seen from Figure 1, is adapted to seat in any one of several apertures formed in the inner bearing 18 for the shaft 17. Thus when it is desired to adjust the angle of the propeller shafts, the collar 22 may be slid inwardly against the action of the spring 24 to free the pin 23. Thereafter, the shaft 17 is rotated and the motion is transmitted through the reduction gear to the disk 6, consequently shifting the angle of the propeller shaft.

In operation, it will be seen that the angle through which the force of the propellers act may be varied at the will of the operator and that such force acts along a line above the weighted portion of the machine. Consequently great stability will be secured and this stability will be inherent in the machine and independent of the skill of the operator.

Further, it is to be noted that by varying the angle of the propeller shafts that the machine may be made to rise or advance or both as desired.

In order to properly support the machine four wheels are provided, namely, a front wheel 25, a rear wheel 26 and a pair of laterally arranged intermediate wheels 27, such wheels being carried in any suitable form of frame-work, as indicated in Figure 2.

It is to be noted that the pairs of propellers are independently driven and their speed can be independently controlled to facilitate turning and other operations.

Further, it is to be noted that the angle through which the force of each pair of propellers acts may be independently varied to thus facilitate maneuvering such as banking, turning and similar operations.

It will be seen that a very simple type of flying machine has been provided which is

of novel construction, which has the propellers in tandem on opposite sides of the machine and widely spaced from each other to secure the maximum effect from each propeller, and it will be seen further that the angle through which the force of the propeller acts may be varied to suit the particular demands of the occasion.

Although the invention has been described in considerable detail, it is to be understood that the invention may be variously embodied and is, therefore, to be limited only as claimed.

It is to be understood that this invention is applicable to other types of flying machines than the one illustrated in the drawings, for instance, it may be applied to dirigibles or other flying machines of this type to aid the machine in rising or any other maneuvering.

I claim:

1. A flying machine comprising a body portion, a pair of revolubly mounted heads on opposite sides of the body portion, a relatively large gear carried by each head, a relatively small pinion meshing with each gear, manually operated means for rotating

and locking said pinions, a pair of propellers located on each side of said body portion with their shafts carried by said heads, and a driving motor for each pair of propellers, said driving motors being located within the body portion, said propellers constituting the sole sustaining means for said flying machine and being adapted to be set at an angle to the horizontal to provide both a propelling and a lifting force.

2. A flying machine comprising a body portion, a pair of propellers arranged in tandem on each side of the body portion, power means for driving said propellers, the propellers of each pair having the same axis, and a stabilizing weight carried by the body portion and located below the axial lines of said propellers, said weight being fixed in position with reference to said body portion, and said body portion housing the power driving means and said weight.

In testimony that I claim the foregoing I have hereunto set my hand at Manitowoc, in the county of Manitowoc, and State of Wisconsin, October 8th, 1925.

MAX M. ARNDT.