Oct. 10, 1933. J. E. HANSON 1,930,199

AEROPLANE

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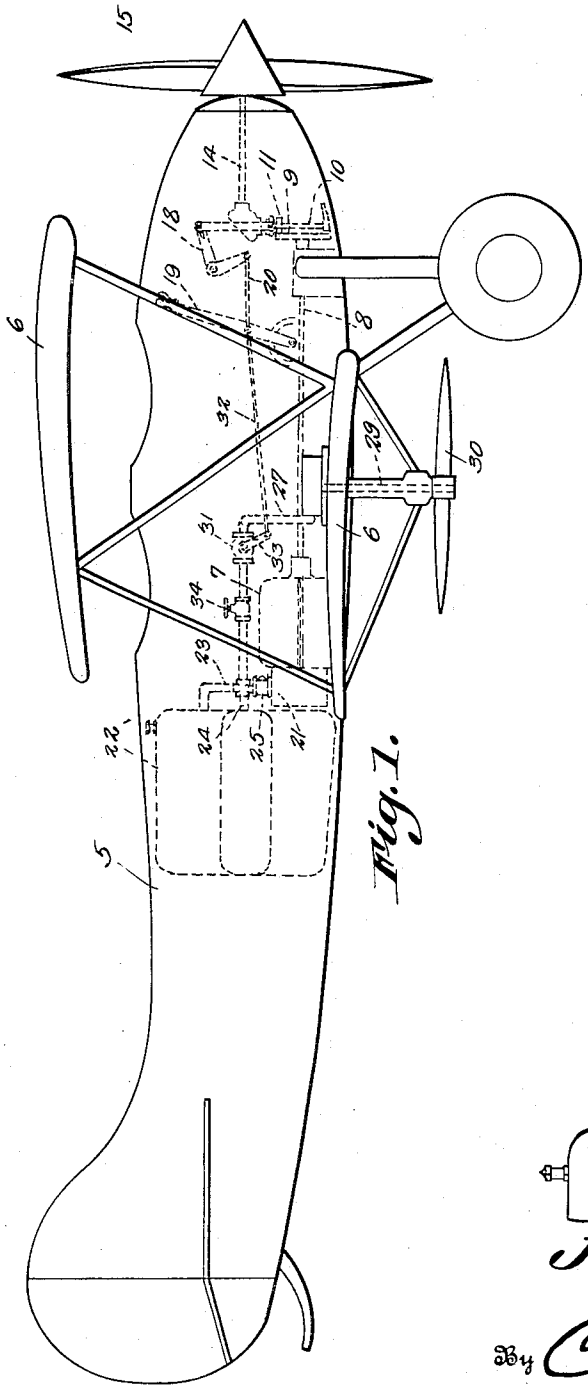


Fig. 1.

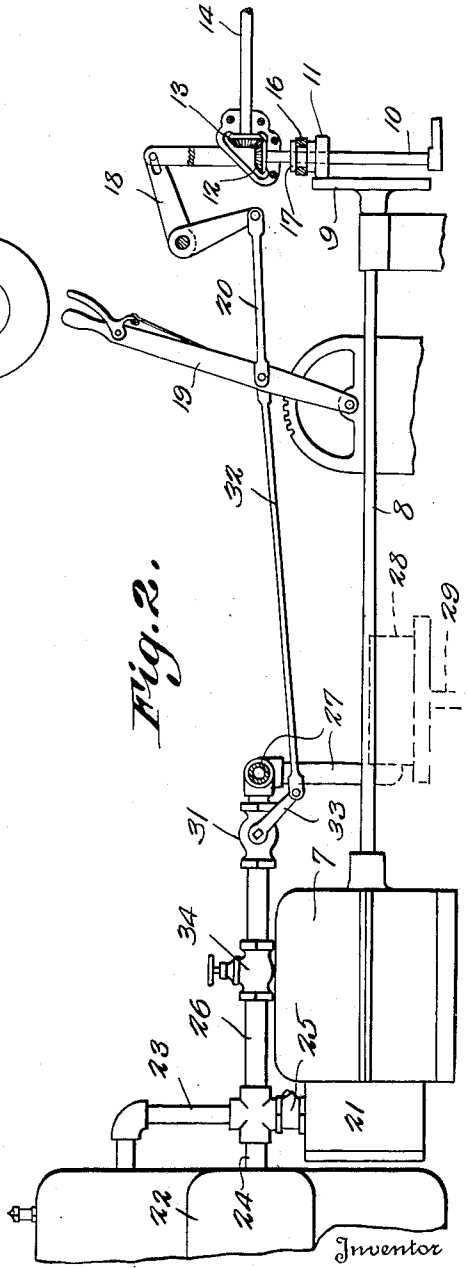


Fig. 2.

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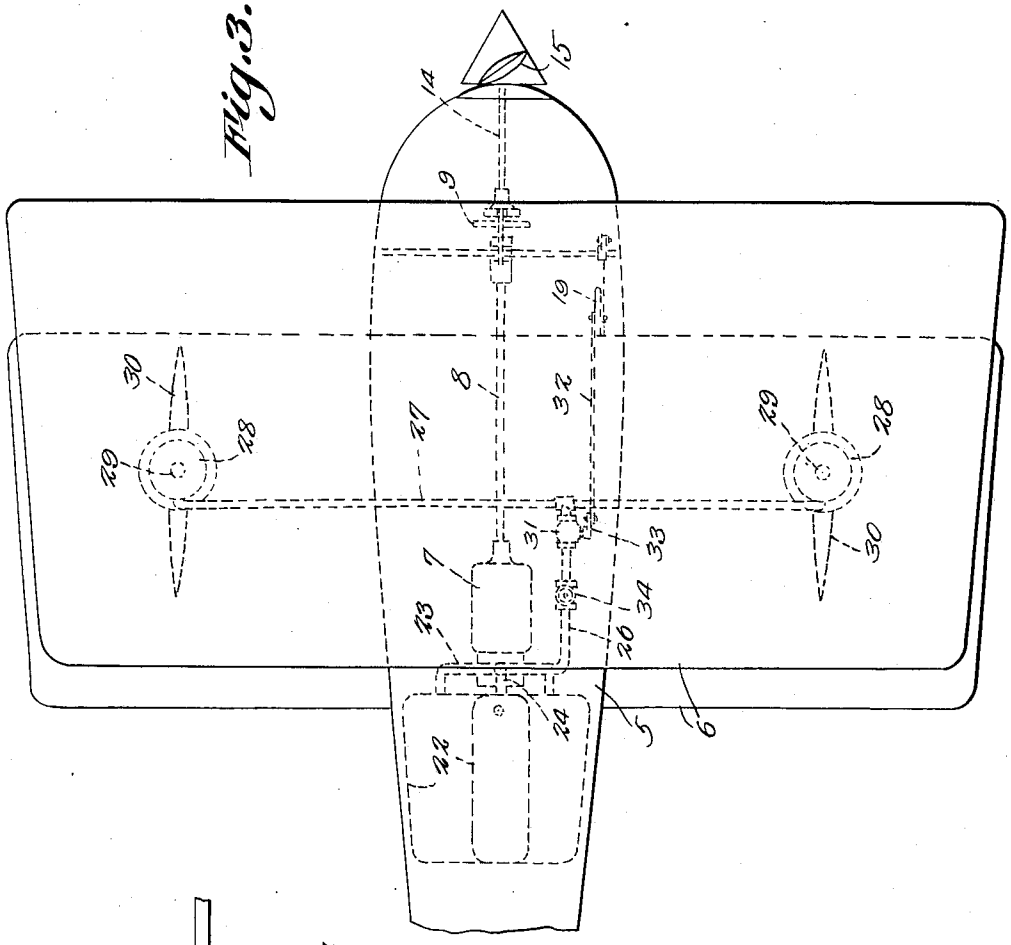
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Fig. 3.



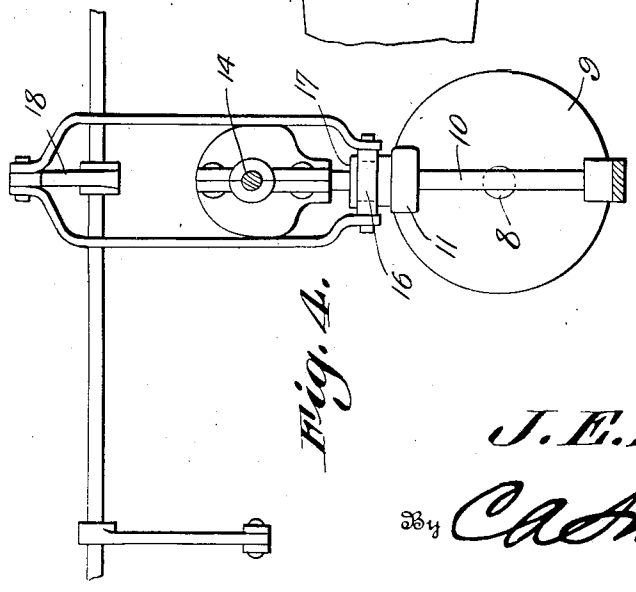


Fig. 4.

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UNITED STATES PATENT OFFICE

1,930,199

AEROPLANE

John E. Hanson, Richmond, Va.

Application May 9, 1932. Serial No. 610,205

2 Claims. (Cl. 244—15)

This invention relates to aeroplane construction, the primary object of the invention being to provide means for attaining the maximum efficiency of an aeroplane motor of a given horsepower, to drive the aeroplane at a greater rate of speed, without increasing the horse power of the motor.

An important object of the invention is the provision of load carrying propellers or sustaining propellers for supporting the weight of the aeroplane, thereby relieving the driving propellers of the weight of the aeroplane, to the end that the entire force of the driving propellers may be utilized in driving the aeroplane.

Another important object of the invention is to provide means whereby the aeroplane may rise or descend vertically, thereby providing an aeroplane that may be operated in restricted areas.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawings:

Figure 1 is a side elevational view of an aeroplane equipped with lifting propellers operating in horizontal planes and cooperating with the main or driving propeller of the machine.

Figure 2 is an enlarged detail view illustrating the controlling means for controlling the auxiliary propellers.

Figure 3 is a plan view of the aeroplane.

Figure 4 is a detail view of the controlling rod and means for transmitting movement of the engine to the driving propellers.

Referring to the drawings in detail, the reference character 5 designates the body portion of the aeroplane, which may be of any desired construction, the wings of the aeroplane being indicated by the reference character 6.

The reference character 7 designates the engine of the aeroplane, which is provided with a drive shaft 8 that carries the disk 9 forming a part of the friction drive mechanism.

Mounted at one end of the shaft 8, is a vertical shaft 10 on which the friction gear 11 is splined, the friction gear 11 being movable over the face of the friction disk 9, to vary the speed of rotation of the vertical shaft 10.

Mounted at the upper end of the shaft 10, is a pinion 12 that meshes with the pinion 13, carried at one end of the propeller shaft 14, on which the driving propeller 15 is mounted.

The friction gear 11 is moved longitudinally of the shaft 10, by means of the yoke 16 that moves in the groove of the collar 17 forming a part of the gear 11. This yoke 16 is moved by means of the bell crank lever 18, that in turn is operated by means of the lever 19, through the medium of the connecting rod 20.

Thus it will be seen that due to this construction, the speed of rotation of the propeller shaft 14 may be varied, to drive the aeroplane at various speeds.

The reference character 21 designates an air compressor that is operated by the engine 7, the compressor being in communication with the tanks 22, through the pipes 23 and 24 respectively, there being provided a check valve 25 adjacent to the compressor, to allow air to pass to the tanks but prevent the return of the air to the compressor.

Communicating with the tanks 22, through the pipes 23 and 24, is a pipe 26 that leads to the pipe 27, which is shown as extending to the compressed air motors 28, that is supported on the lower wings 6 of the aeroplane construction.

Vertical shafts 29 are operated by the compressed air motors 28, which shafts carry the lifting or descending propellers 30. A valve 31 is disposed in the pipe 26, and controls the passage of compressed air to the motors 28, to govern the speed of rotation of the propellers 30. The valve 31 is operated by the lever 19 through the medium of the rod 32, which connects with the arm 33 of the valve 31, and the lever 19.

As shown by Figure 2 of the drawings, the valve 31 is operated to regulate the speed of the propellers 30 simultaneously with the operation of the yoke 16 to vary the speed of the driving disk 9, shafts 10 and 14, and propeller 15.

It might be further stated that the valve 31 is so adjusted that when the driving propeller 15 is operating to drive the aeroplane, air is admitted to the motors 28 to rotate the propellers 30 at a predetermined rate of speed, to hold the aeroplane in balance, the propellers 30 at the same time sustaining the weight of the aeroplane, to the end that the entire force of the driving propeller may be directed to move the aeroplane forwardly.

As the speed of the driving propeller is decreased, the valve 31 is automatically opened allowing a greater quantity of air to pass to the

air motors 28, thereby increasing the speed of rotation of the propellers 30.

A valve member 34 is also positioned within the pipe 26, and provides means whereby the operator may manually control the passage of air to the motors 28.

From the foregoing it will be obvious that due to this construction an aeroplane equipped with the launching and landing propeller 30, may operate at a much faster rate of speed, than aeroplanes of known construction.

It will further be seen that by throwing the propellers 30 into operation, the aeroplane may be permitted to rise rapidly and in a line substantially vertical. By reducing the speed of rotation of the propellers 30, a landing of the aeroplane may be made in restricted areas, eliminating the necessity of gliding to the landing surface.

I claim:

1. In an aeroplane, a body portion, wings mounted on the body portion, sustaining propellers operating in horizontal planes and disposed under the wings, a driving propeller, means for controlling the speed of rotation of the driving propeller, and means operated by the controlling means for simultaneously controlling the speed of rotation of the sustaining propellers.

2. In an aeroplane, a body portion, a driving propeller mounted at one end of the body portion, changeable speed gearing for varying the speed of rotation of the driving propeller, sustaining propellers, compressed air motors for operating the sustaining propellers, a compressed air pipe for delivering compressed air to the motors, a valve in the pipe for controlling the passage of air to the motors, a rod connected with the valve, a rod connected with the change speed gearing, a lever to which the rods are connected to operate the rods simultaneously and automatically vary the relative speed of the driving propeller and sustaining propellers.

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