

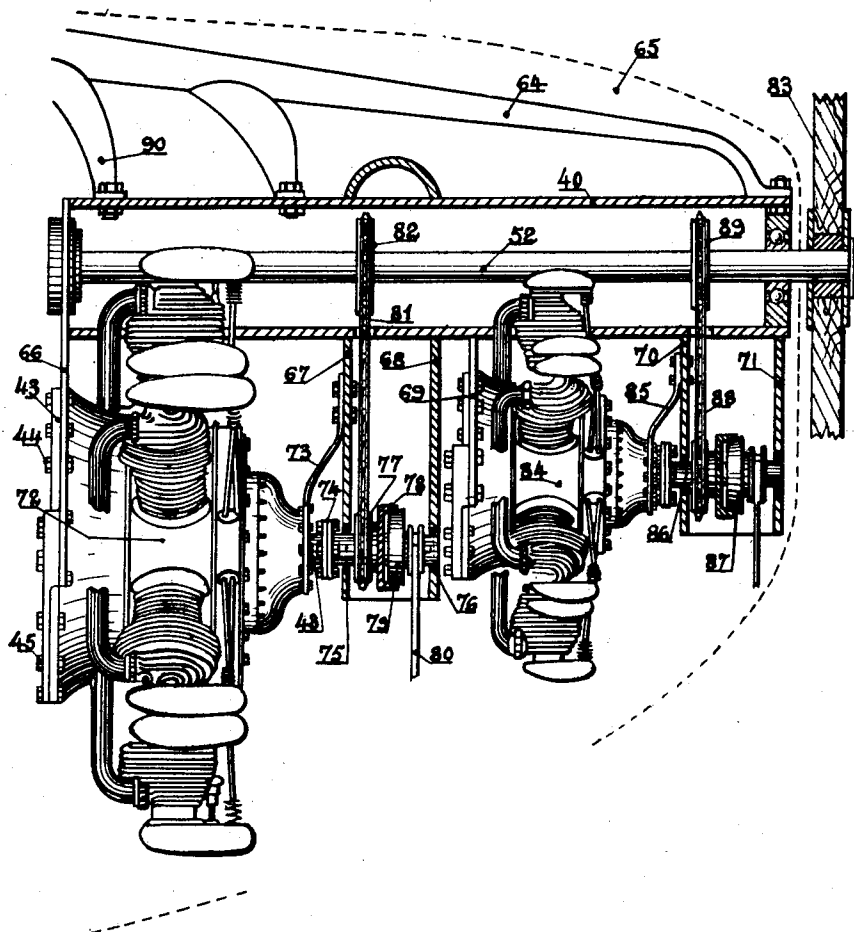
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ENGINE SET

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ENGINE SET

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1 Claim. (Cl. 60—97)

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It is useful to utilize a set uniting in a single frame a plurality of coordinate engines, each of which having for example its particular crank shaft. Such a division of the motor forces acting on the same propeller with possibility to stop one or more of the cooperating engines enables a flying machine to work with high flexibility and to avoid stopping of fuel supply.

The present invention relates especially to arrangement forms of the constituting engines on the main frame permitting to remove any engine in an easy manner and ensuring the mechanical connections to the propelling shaft in combination with the individual controlling means of each of the cooperating engines.

The frame is characterized by cross pieces or flasks united by means of a tube which fits around the propeller shaft; each engine of the set is inserted between the cross pieces or flasks and removably fixed thereupon, the crank shaft or driving shaft of the said engine being mechanically connected to the propeller shaft by means of any suitable transmission with an appropriate system of unclutching.

The accompanying drawing shows by way of example several embodiments of the invention comprising different types of engines and mechanical combinations.

The invention is clearly illustrated in the accompanying drawing in which is shown an arrangement of two cooperating engines in alignment.

The drawing shows an arrangement of a set consisting of two engine elements with star-fashion cylinders, but of unequal power. There is a frame tube 40, attached to the framework 64 of the machine body 65 by means of flanges such as 90. On this tube 40, there are fixed successive flasks 66, 67, 68, 69, 70 and 71 which extend from one side thereof.

Between the flasks 66 and 67, an engine element 72 is inserted and fixed at first to the flasks 66 by means of a collar 43, bolts 44 and a section enclosure 45. At its forward end, the engine element 72 is connected by means of a flange 73 to the flask 67. The shaft 48 of this engine 72 is connected by means of a coupling flange 74 to a secondary shaft 75 maintained by the flasks 67 and 68.

A tooth wheel 77 loosely mounted on the shaft 75 is integral with one of the elements 78 of an engaging system, the other of the said elements 79 movable and controlled by a fork 80 may slide

about the secondary shaft 75, but it is driven by the rotation of this shaft. By actuating the fork 80, it is possible to engage or disengage at will the tooth wheel 77 with the shaft 75.

A chain 81 passes about the tooth wheel 77 and actuates another tooth wheel 82 fixed to the shaft 52 of the set; the common shaft 52 placed on the axis of the tube 40 carries the propeller 83 of the flying machine.

Before the above-mentioned engine element 72, there is another engine element 84 the power of which may be less. It is fixed in a similar manner to the flask 69 and at its forward end by means of a flange 85. It also actuates an intermediate shaft 86 provided with an engaging mechanism 87 and driving a tooth wheel 89 by means of a chain 88, this tooth wheel being fixed upon the common shaft 52.

By this arrangement the two engines are rendered independent of each other so as to obtain a greater flexibility.

According to the invention, a number of different arrangements may be realized with the engine elements constituting the set. The different engine elements are every time fixed to cross pieces or flasks mounted on a central frame tube and the transmission of power to the common shaft of the set will always be effected by means of individual outfits for each of the engine elements with an equally individual device for connecting and disconnecting.

From the foregoing description, when taken in connection with the single figure of the drawing now remaining, the principle of operation will be obvious.

What I claim is:

A set comprising two elementary engines of star-fashion cylinders and of unequal powers, a frame tube support, flasks on the said frame, flanges for its fixation on the frame of the flying machine, means for fixing the engines to the flasks, a secondary shaft a connecting device for each engine with said secondary shaft; a mechanical connection therefore including chains and tooth wheels between each of the secondary shafts and the common shaft of the system, and forks for the control of the said connections.

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