

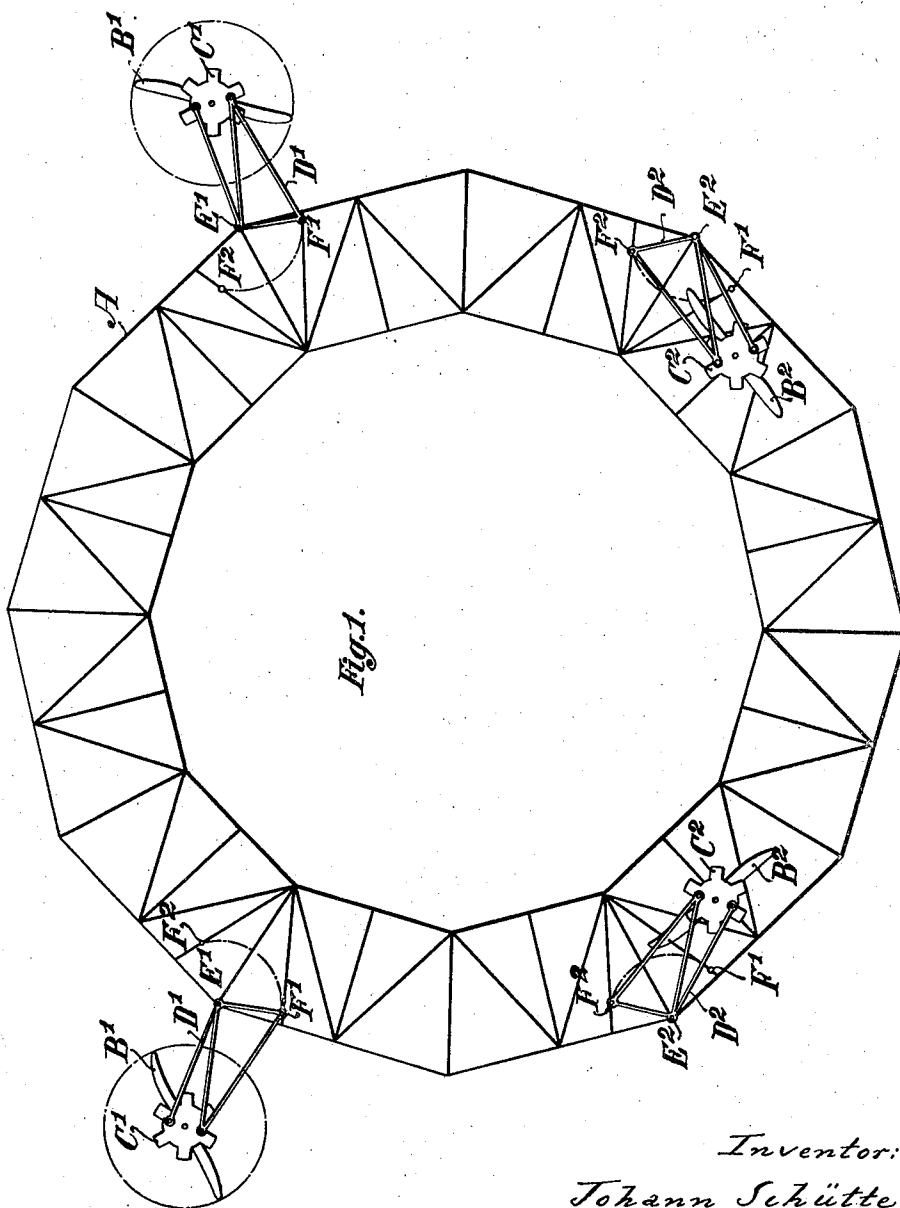
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J. SCHUETTE

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DRIVING GEAR FOR AIRSHIPS OF THE RIGID TYPE

Filed Nov. 2, 1929 2 Sheets-Sheet 1



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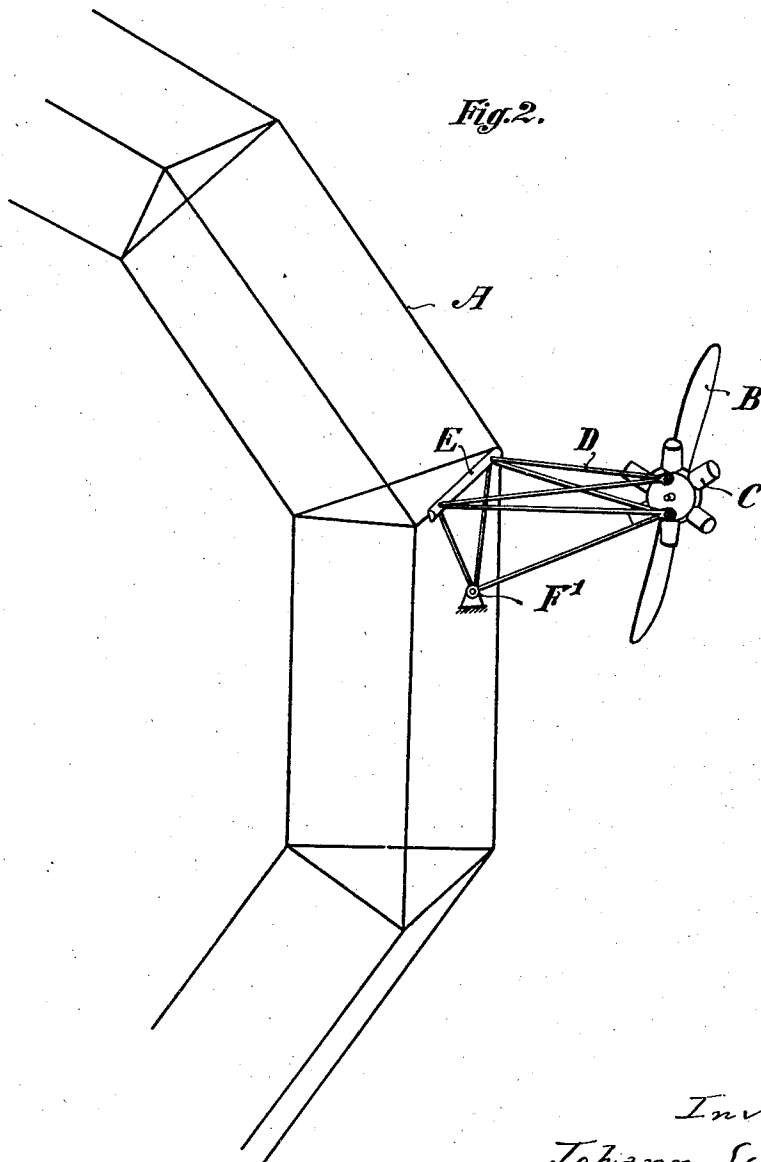
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DRIVING GEAR FOR AIRSHIPS OF THE RIGID TYPE

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The moving speed of an air-ship is influenced by and partially depends upon the resistance of the body of the air-ship against atmospheric air and, besides that, the speed of the air-ship is influenced by secondary resistances opposed to the air by the cars, the steering gear and other parts projecting from the body of the air-ship. In order to reduce the resistance of the motor cars, the same are usually made of a size only just sufficient for the engineer to be accommodated therein and to carry out the absolutely necessary manipulations. It will be seen that the reduction of the size of the motor cars in order to correspondingly reduce the resistance to the outer air, and the accommodation necessary for the attendance of the motors are requirements of antagonistic nature which cannot be complied with at the same time to the desired degree. Moreover, there is a further disadvantage in that the air resistance of the car and propeller must be sustained without any use, when some of the motors are stopped and out of order or non-operative during a long distance voyage.

The chief object of my invention is to reduce the air resistance to a considerably higher degree than hitherto could be realized in connection with air-ships and with this object in view I discard motor cars of the types heretofore constructed and used in connection with air-ships, and I substitute therefor supporting arms of the cantilever type pivotally attached to the framework structure of the air-ship and carrying at their free ends the motors and propellers so that each supporting arm together with the motor and propeller carried by the same, will be adapted to be moved to occupy an outer position for driving purposes and to be returned and taken in to occupy an idle or non-operative position within the body of the air-ship, when the propeller is to be stopped and only a reduced number of propellers shall work, or the motor requires repair and the like. Preferably I provide a covering of the least possible air resistance for encasing the motor and the propeller. The aperture in the skin or envelope of the body of the air-ship provided for moving the cantilever arm supporting the

motor and propeller, into the body and out of the same, may be closed by a covering sheet of woven fabric or the like adapted to be shut when the arm and motor are within or on the outside.

In this way I reduce the air resistance of the driving gear to a smallest possible degree or even eliminate the same entirely respecting those motors which at a time are stopped for certain reasons, and on the other hand I improve thereby the access to the motors and propellers for repair purposes and the like, when the pivotally mounted cantilever arm is moved to occupy a position within the body of the air ship.

The stated and other objects of my invention will more fully appear from the following description. Having in view the said objects which will more fully appear from the following description or will be obvious therefrom, my invention consists in the novel devices, combinations of devices, and improvements set forth.

The accompanying drawings, which are referred to herein and form a part thereof, show diagrammatically, by way of example, one embodiment of my invention as applied to the framework structure of an air-ship of the rigid type, which embodiment in connection with the description herein will serve to explain the principles of my invention more in detail.

Referring to the drawings:

Figure 1 is a view in cross-section of the framework structure of an air-ship of the rigid type with four pivotally mounted cantilever arms and motors symmetrically arranged according to the tenets of air-ship construction, and Figure 2 is a perspective view of a single cantilever arm and motor and the adjacent parts of the framework structure on a somewhat larger scale.

The framework A is one of the main annular members of an air-ship of the rigid type and four propellers are mounted upon this constructional member of the framework, two propellers B¹ being shown in working or outside position and two propellers B² being illustrated in stopped or inside position.

The motors C^1 and C^2 and propellers B^1 and B^2 are mounted in pairs comprising each one motor and one propeller, such as C^1 and B^1 or C^2 and B^2 on supporting arms D^1 , and D^2 , respectively, which are of the cantilever type and consist each of a rigid framing or rodward pivotally connected with the framework A so as to be adapted to turn about a horizontal axis E^1 or E^2 , respectively, in order to be moved from the working or outside position, such as B^1 in Figure 1, to the stopped or inside position, such as B^2 in Figure 1, and vice versa, suitable means (not shown) being provided in connection with the framework of the body of the air-ship for locking the supporting arms D^1 and D^2 in the one and the other position. Preferably I employ a suitable winch (not shown) for turning the supporting arms about the axis E^1 or E^2 from the outside positions to the inside positions, and vice versa. The locking means at the higher or outside position is indicated at F^1 , and F^2 is the locking means for the inside or lower position of the motor. Thus F^1 and F^2 are two locking means, the means F^2 being at a higher level than the means F^1 .

For the purpose of explaining the arrangement more clearly a single supporting arm with a motor C and a propeller B is illustrated in Figure 2. As will be seen in the perspective view shown in Figure 2, the letter A denotes a section of an annular framing or member of the framework structure of an air-ship and the supporting arm or carrier D, composed of several duly strutted bars, rods, tubes and the like, forms a kind of a rigid frame structure for the motor to be supported thereon which, as shown, is adapted to be turned about the axis E and locked at F^1 in the framework A, when in outside or working position.

All connections, operating levers and the like required for attending and operating the motor and extending from a post of duty provided at a suitable place, to the motor may be connected with appropriate mechanisms for operation over and above the axis E.

In case of very large air-ships and increased efficiency the provision of suspended cars below the body of the air-ship or laterally in the best possible case, as hitherto usual, entails difficulties as regards the location and arrangement of the propellers in a manner that they will not or cannot overlap and interfere with each other. As will be seen in Figure 1, the motors supported and arranged according to my invention, so as to be capable of being swung out and withdrawn, can be located and arranged at any desired point even in the upper half of the circumference of the body of the air-ship, so that the number of propellers can be correspondingly increased. My invention thus affords the further advantage of distributing the required efficiency to

the several propellers and choosing the best possible diameters thereof in a far more satisfactory manner than hitherto could be accomplished.

I have herein described and shown, by way of example, one practical construction of my present improvements, but it will be apparent that the invention is susceptible of embodiment in various other alternative forms, and I, therefore, reserve the privilege of resorting to all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

What I claim is:—

1. Driving gear for air-ships of the rigid type, comprising a supporting arm of the cantilever type pivotally mounted in the annular framework of the body of the air-ship and adapted to be swung out into an outside position, and returned into an inside position within the framework of the body of the air-ship, and a motor and propeller supported by the said arm.

2. Driving gear for air-ships of the rigid type, comprising a framework member forming a supporting arm of the cantilever type pivotally mounted in the annular framework structure of the body of the air-ship and adapted to be swung out into an outside or operating position and returned into an inside or idle position within the framework structure of the body of the air-ship, a motor and propeller supported by the said arm, and means for locking the arm in the one or the other position.

3. Driving gear for air-ships of the rigid type, comprising a framework member forming a supporting arm of the cantilever type pivotally mounted in the framework structure of the body of the air-ship and adapted to be swung out into an outside or operating position and returned into an inside or idle position within the framework structure of the body of the air-ship, a motor and propeller supported by the said arm, means for locking the supported arm in the outside or operating position, and means for locking the arm in the inside or idle position, the first named means being located at a higher level than the second-named means.

4. A driving gear for air-ships of the rigid type, according to claim 1, wherein the supporting arm is pivotally attached to an outer strut of the framework structure of the body of the air-ship, said strut forming the oscillating axis of the supporting arm.

5. Driving gear for air-ships of the rigid type, according to claim 1, wherein the supporting arm with a motor and propeller is pivotally connected with the framework structure of the body of the air-ship at a point over and above the horizontal central plane of said body of the air-ship.

In testimony whereof I affix my signature.

JOHANN SCHUETTE.