O. TROSSIN.

FLYING MACHINE.

APPLICATION FILED JAN. 26, 1912.

1,046,682. Patented Dec. 10, 1912.

Fig 1.

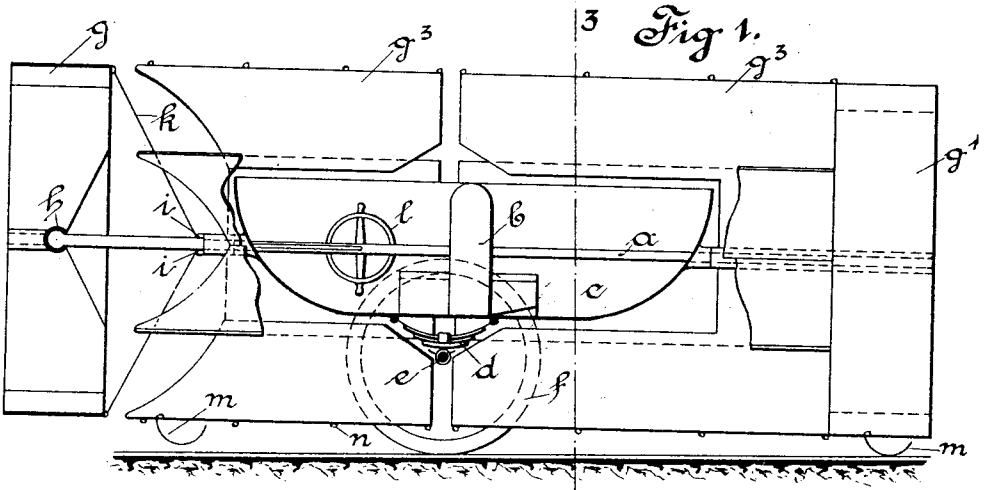


Fig 2.

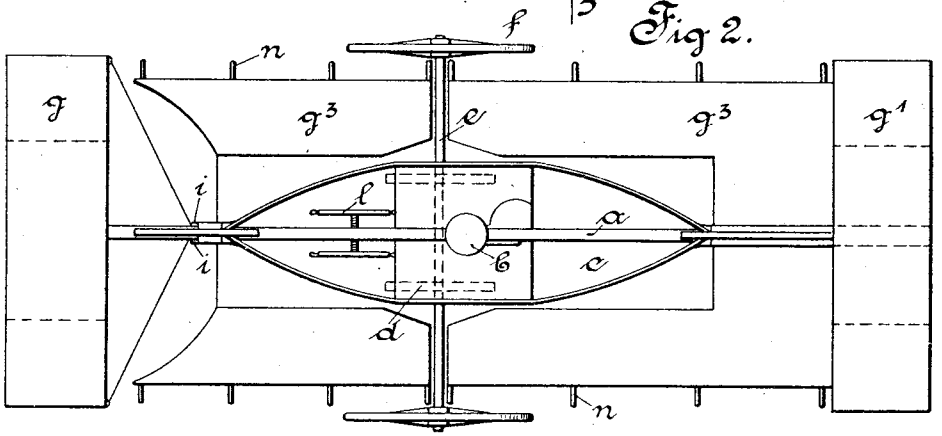
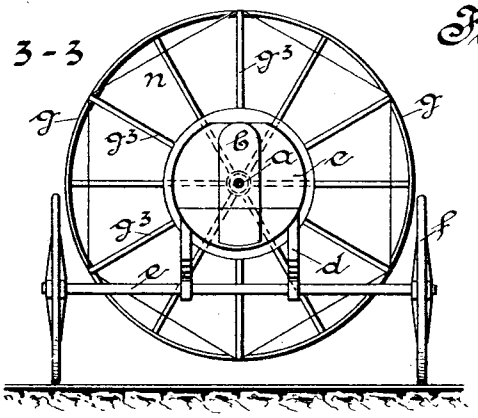


Fig 3.



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OTTO TROSSIN, OF HAMBURG, GERMANY.

FLYING-MACHINE.

1,046,682. Specification of Letters Patent. Patented Dec. 10, 1912.

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To all whom it may concern:

Be it known that I, OTTO TROSSIN, a subject of the German Emperor, residing at Hamburg, German Empire, have invented a new and useful Flying-Machine, of which the following is a specification.

My invention relates more particularly to that class of flying machines in which wheel-like aeroplanes are employed. Such aeroplanes are composed of a set of radial planes connected by circumferential planes forming a prism or a cylinder.

One object of my invention is to so combine the said aeroplanes with groups of radially arranged rotatable sustaining planes that the machine, in case the motor should become inoperative or the pilot should for some other reason be unable to control the machine, will glide slowly downward in a zigzag path, the sustaining planes acting as parachutes.

A further object of my invention is to employ one or several or all of the said aeroplanes for steering the machine vertically as well as horizontally.

Reference is to be had to the accompanying drawings in which—

Figure 1 is an elevation, Fig. 2 a plan view, and Fig. 3 a cross section on line 3—3 in Fig. 1, of my improved flying-machine.

a is a longitudinal rod or shaft extending in the horizontal axis of the machine.

b is the motor, preferably a reaction motor invented by applicant, which, however, as it forms no part of this invention, will not be referred to in detail. The motor is disposed in a car *c* attached to rod *a* which car also supports the seat for the pilot, etc. Wheels *f* are attached to the car by means of springs *d* and an axle *e*.

On the rod *a* and at or near its ends are rotatably arranged aeroplanes *g* and *g*¹ which, as is well known, are composed of radial planes and peripheral planes extending from the end of one radial plane to the other, thus forming a wheel-like structure the periphery of which is cylindrical or prismatic.

The aeroplane *g* is the one in front. It is adapted to turn on a pivot *h*. Wires or lines *k* guided over rollers *i* to a steering wheel *l* enable the pilot to give it the desired position to act as a rudder for steering the machine. Springs *m* serve as buffers to reduce the shock when landing. Between the aeroplanes *g* and *g*¹ are disposed bearing planes *g*² which are free to turn on rod *a*. There are six of them in the present instance, as illustrated in Fig. 3. They have no peripheral planes at their ends but form an open structure, their ends being only held together by means of wires or rods *n*. The bearing planes are here divided into two sets, one fore and one aft, and there is an open space between the two sets. This is required to be done as otherwise the axle *e* would prevent the planes from turning on rod *a*.

It may be noted here that this invention is not limited to the arrangement of aeroplanes and bearing planes shown and described, viz., where the aeroplanes are at the ends of the machine and the bearing planes are between them. When desired the aeroplanes might be arranged between sets of bearing planes, or there might be a set or sets of bearing planes at the center of the machine, an aeroplane fore and aft, then two more sets of bearing planes in front and at the rear of said aeroplanes, etc. It is not necessary that only the aeroplane in front should be movable; the rear one, or both, or all of them when there are more than two, may serve for steering.

Supposing the machine to be at considerable altitude and the motor to stop suddenly, or the machine to become unmanageable for some other reason, then it will begin to fall. As the frame will never be in perfect equilibrium and, at the moment of the accident, probably not in an entirely horizontal position but at some inclination to the horizontal line it will not fall vertically but move in a downwardly inclined path. When the machine moves thus, the aeroplane that is in front will catch the air at its periphery. The consequence of this is that that end of the machine is delayed by the air resistance while on the other end the action of said resistance is not so strong. Consequently the machine will turn over, so that the other aeroplane is now in front and catches the air, etc. Of course, in changing its position, the machine will always slide down toward that side to which it is inclined, and so it obtains the necessary velocity for causing sufficient air resistance to act on the aeroplane which is in front. The machine will slide down on a zig-zag path, and its fall will be broken to such an extent that the persons on it are not hurt when it touches the ground.

It will be seen that it is important to have sets of bearing planes arranged as described, because, if there were but one plane, it might, and probably would, very soon go into a vertical or substantially vertical position and its retarding as well as its "sliding" action would be practically *nil*. But when the bearing planes are arranged on the radii of a circle, there will always be sufficient resistance to prevent the machine from falling vertically and to cause it to slide in the manner described. Besides, the said arrangement of the bearing planes has the additional advantages that it increases the sustaining surface for 1½ of a single plane and that two adjacent planes form a groove or channel in which the air is caught, thus giving additional resistance.

I claim:

1. In a flying machine, in combination, a rod or shaft, a car fixed to said shaft, aeroplanes composed of radial and peripheral planes, and bearing planes arranged on the radii of a circle, said aeroplanes and said bearing planes being adapted to turn on said rod or shaft, the aeroplanes being arranged at the fore and aft ends of the machine with the bearing planes extending substantially from one aeroplane to the other.

2. In a flying machine, in combination, aeroplanes composed of radial and peripheral planes, and bearing planes arranged on the radii of a circle, said aeroplanes and said bearing planes being adapted to turn on their axis, the axis of one of said aeroplanes being adapted to be displaced relatively to the machine.

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