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35c

G. SILVESTRI.
FLYING MACHINE.

APPLICATION FILED DEC. 1, 1910.

1,044,600.

Patented Nov. 19, 1912.

Fig. 1.

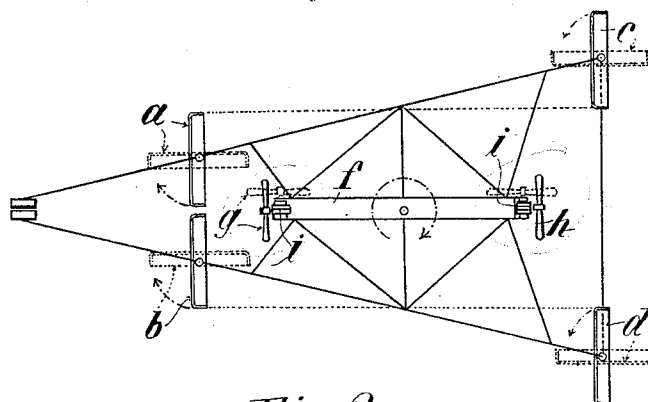
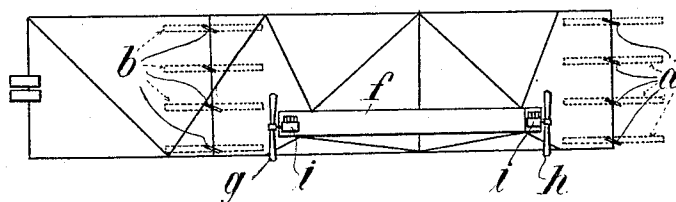


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

GIULIO SILVESTRI, OF VIENNA, AUSTRIA-HUNGARY.

FLYING-MACHINE.

1,044,600.

Specification of Letters Patent.

Patented Nov. 19, 1912.

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To all whom it may concern:

Be it known that I, GIULIO SILVESTRI, a citizen of Austria, and resident of Vienna, in the Province of Lower Austria, Austria-Hungary, have invented certain new and useful Improvements in Flying-Machines, of which the following is a specification.

The present invention relates to that type of flying machines in which several groups of vertically superposed supporting planes in conjunction with propelling screws, support the machine in the air.

The invention consists chiefly in dividing and arranging the groups of supporting planes in such a manner that each group during a straight flight operates in a zone of air, which is not encountered by the supporting planes of another group.

A further feature of the invention is to enable the flying machine to ascend in the vertical direction from where it is standing, this being effected by suitably adjusting the supporting planes and the propelling screws.

The drawing illustrates diagrammatically the subject of the invention, in which:—

Figure 1 is a plan and Fig. 2 a side elevation.

As shown, the groups of supporting planes *a*, *b*, *c*, *d*, are so symmetrically arranged relatively to the longitudinal axis of the flying machine, that the zone of air encountered by any one group is not again utilized for the exertion of a lifting force by another group of supporting planes. This arrangement can be effected by variously apportioning the groups of supporting planes; with regard to stability of the flying machine however, the symmetrical apportionment illustrated is preferred, in which for example two groups *a* and *b* of supporting planes are situated in front close to one another, and two other groups *c* and *d* are situated far behind; moreover the rear groups are set farther apart from the longitudinal axis of the flying machine, in such a manner that the volumes of air disturbed by the front groups of supporting planes can pass freely between the rear groups of supporting planes. Therefore each group of supporting planes operates in a volume of air wholly unencountered by the other groups and the operation of each group is consequently undisturbed and completely effective.

The screws *g* and *h* for generating the necessary lifting force and for forward progression are arranged along the longitudinal axis at the front and rear ends of the car or platform *f* symmetrically to an axis through the center of gravity of the flying machine. The screws together with their motors *i* are rotatable through 90 degrees about vertical axes, and when correspondingly adjusted relatively to the longitudinal axis of the flying machine, produce relatively to the axis through the center of gravity a couple, which, in conjunction with the supporting planes, can set the entire flying machine in rotation. In order to be able to utilize the rotary movement for vertical ascension from the ground, the several groups of supporting planes also are rotatable about their vertical axes, such that the front groups *a*, *b* relatively to the axis through the center of gravity can be adjusted through 90 degrees in the one direction and the rear groups *c*, *d* in the other direction; the motors also having been correspondingly adjusted, as indicated by dotted lines in Fig. 1, the propulsive power of the screws in conjunction with the supporting planes moving along helical paths effect a vertical ascent, by the planes engaging the air strata to a certain extent in the manner of a screw.

By suitably adjusting some of the groups of supporting planes in the direction of longitudinal flight and another group perpendicular thereto, a circle of small diameter can also be described by the flying machine, while otherwise during purely longitudinal flight a known form of rudder can be operated, the action of which if required can be supplemented by an also known form of elevation controller.

The adjustment of the screws and supporting planes for effecting a vertical ascent is employable also for descending vertically and for causing the flying machine to hover at a constant height, simply by changing the rate of rotation of the propelling screws. If the rate of rotation of the screws is such that their power exceeds the action of gravity, the flying machine ascends; if the power of the screws is so diminished that it merely exactly balances the action of gravity, the flying machine remains hovering at the same height while slowly rotating, while a further reduction of the power of the screws results in slow

descent and still further diminished rotation of the flying machine.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

In a flying machine the combination with several groups of superposed supporting planes, said groups being arranged behind one another, the several groups being so arranged relatively to each other that each group operates in a volume of air wholly unencountered by the other groups, and

each group being rotatable about its vertical axis, of propelling screws arranged in the longitudinal axis of the machine and rotatable about their vertical axes, as described for the purpose set forth. 15

Signed at Vienna, Lower Austria, Austria-Hungary, this 12th day of November, 20 A. D. 1910.

GIULIO SILVESTRI.

Witnesses:

WILHELM BERGER,
ADA MARIA BERGER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
