

S. O'NEILL.
FLYING MACHINE.

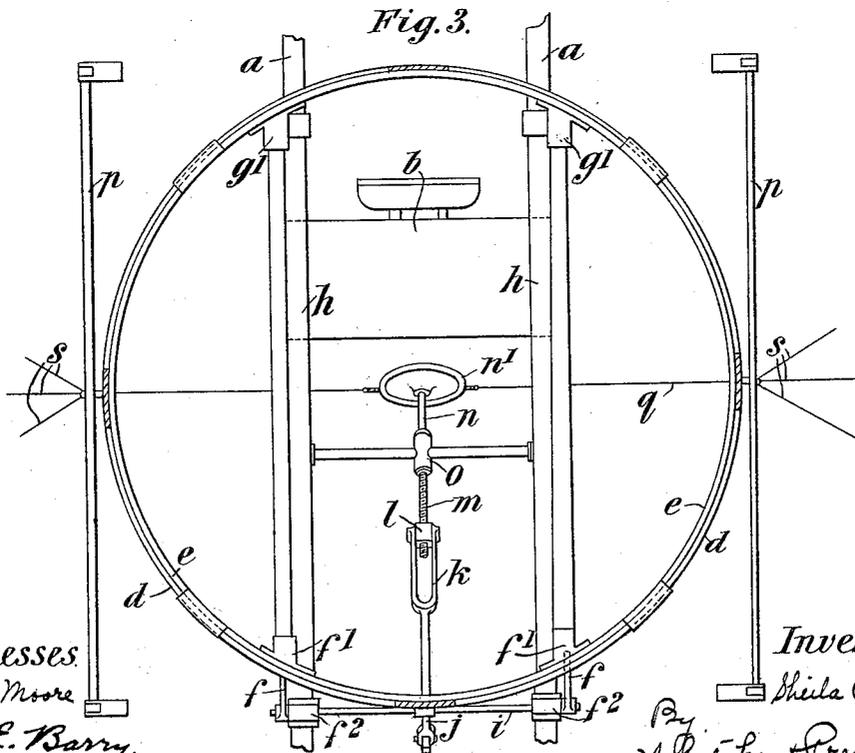
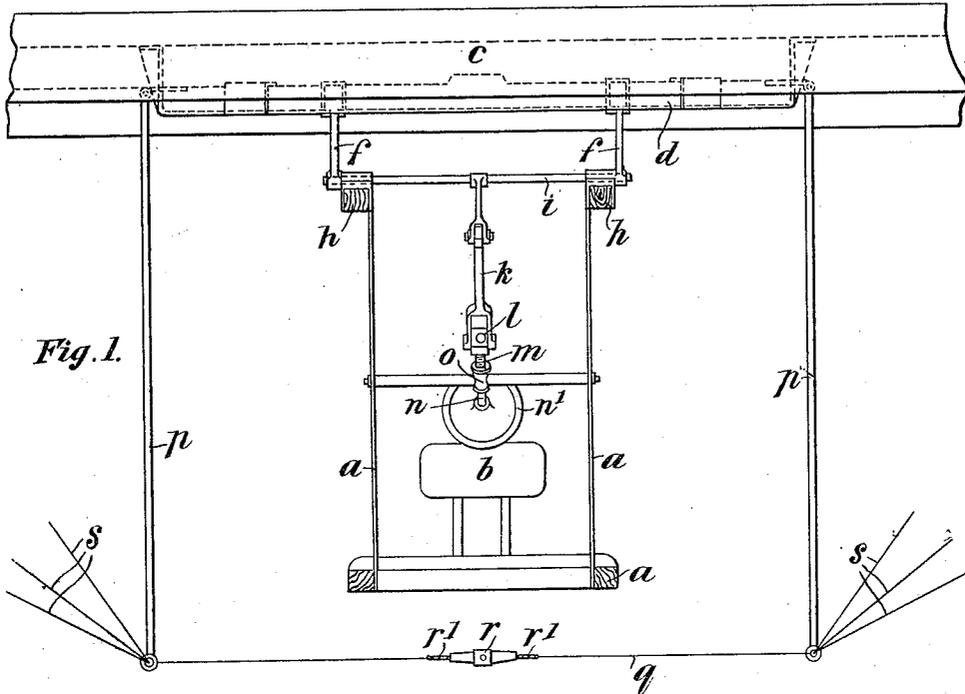
APPLICATION FILED MAR. 7, 1911.

Patented Dec. 24, 1912.

2 SHEETS-SHEET 1.

1,048,338.

*Fields for
storage
also better
x 4/1*



Witnesses
J. K. Moore
R. E. Barry

Inventor:
Sheila O'Neill
By *Whitaker & Trewatt*
Attys.

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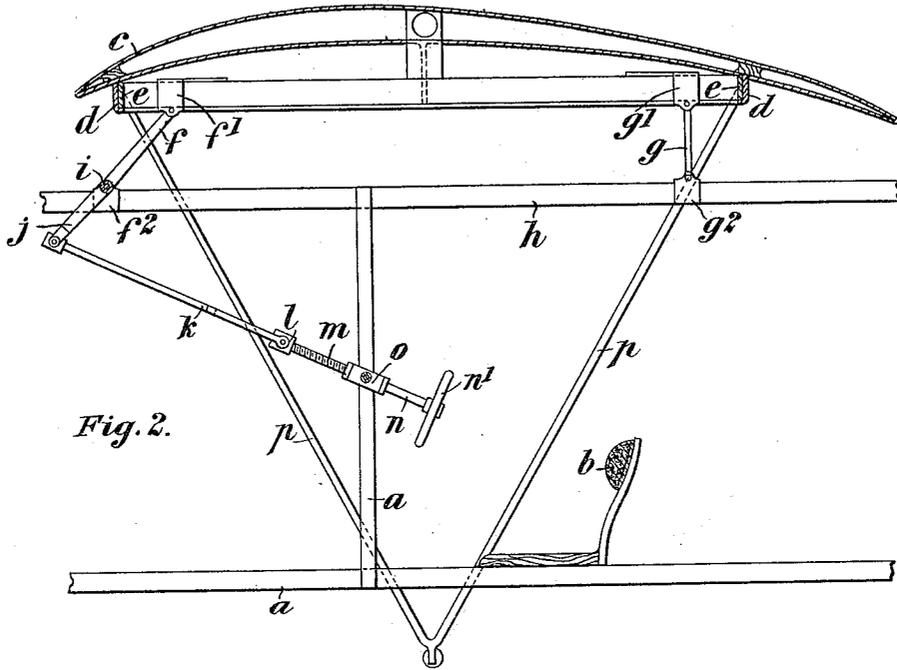
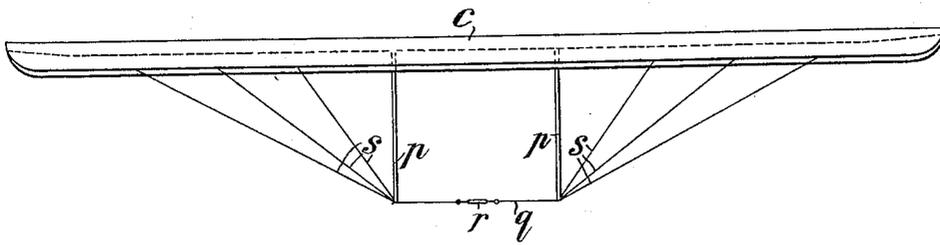


Fig. 2.

Fig. A.



Witnesses.

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UNITED STATES PATENT OFFICE.

SHEILA O'NEILL, OF LONDON, ENGLAND.

FLYING-MACHINE.

1,048,338.

Specification of Letters Patent.

Patented Dec. 24, 1912.

Application filed March 7, 1911. Serial No. 612,889.

To all whom it may concern:

Be it known that I, SHEILA O'NEILL, a subject of the King of Great Britain, residing at 5 Salters Hall Court, Cannon street, London, England, have invented new and useful Improvements in Flying-Machines, of which the following is a specification.

My invention relates to improvements in flying machines of the kind in which the inclination of the main plane and its longitudinal position relatively to the framework can be adjusted.

According to a known method a plane bearing frame is connected to a motor carrying frame by links the latter frame having a number of windlasses provided with pedal-cranks. A cord passes around the windlasses and is attached at each end to the front and rear of the plane-bearing frame respectively. The angle of incidence of the upper frame is varied by shifting the weight beneath the said frame forward and backward and this is effected by operating the pedal-cranks. In another arrangement an adjustable plane has been employed capable of being moved backward and forward, raised and lowered, and tilted, these several movements being effected independently of each other and the tilting of the plane being caused through the medium of a link operated by a bell crank actuated by a hand-lever. Now, according to my invention which is chiefly applicable to monoplanes or tandem monoplanes in which the engine is placed in front of the main plane with the tractor screw mounted upon the crank shaft and constituting what is known as a direct drive, I provide for effecting the adjustment of the inclination of the said plane and its position relatively to the frame simultaneously by means of a system of links connecting the plane to a single operating mechanism for operating the links.

In a suitable way of carrying out my invention I carry the main plane upon a ring which is rotatably mounted upon an annular frame or table, the said table being hinged to the upper ends of two rods, the lower ends of which are hinged or pivoted to sleeves or collars mounted upon rods or bars in the frame of the machine. Suitable means, such as an arm and a hand operated screw and link, may be provided for altering the angle of one of the rods so that the plane can be

tilted forward or backward relatively to the fixed parts of the machine moving forward, at the same time lifting up the front of the plane and lowering the back of the plane thus varying the angle of incidence for the purpose above described. The main plane can turn upon the table so as to permit of its being brought to lie longitudinally of the framework of the machine for the purpose of reducing the width of the latter for transit by road or rail or for storage.

To enable the invention to be fully understood I will describe it by reference to the accompanying drawing, in which:—

Figure 1 is a front view of the central portion of a flying machine having my improvements applied thereto. Fig. 2 is a central vertical transverse section thereof. Fig. 3 is a plan view with the main plane removed, and Fig. 4 is an elevation drawn to a smaller scale showing the arrangement of the tie wires for strengthening the plane. *a* represents the framework of the machine and *b* is the driver's seat.

c is the main plane and *d* is the ring upon which the said main plane is fitted.

e is the annular table on which the ring *d* is mounted and *f, f, g, g* are two pairs of rods, the upper ends of which are hinged to brackets *f¹* and *g¹* respectively upon the annular table *e*. The lower ends of these rods *f* and *g* are hinged to fittings *f²* and *g²* upon rods or bars *h* fixed to, or forming part of, the framework of the machine. The two rods *f, f* are keyed upon a transverse spindle *i* which is rotatably held in the aforesaid fittings *f²* and the said spindle *i* has keyed upon it the arm *j* the lower end of which is hinged to one end of a link *k*, the other end of which has pivotally connected to it a nut *l* engaging with the screw-thread *m* upon a rod *n* which is held in a bearing *o* and is fitted with the hand-wheel *n¹* by means of which it can be turned. With this construction it will be obvious, assuming that the parts are in the relative positions indicated in the drawing, that on the hand-wheel *n¹* being turned in one direction the arm *j* will be turned so as to swing the links *f* in the forward direction and as the links *f* are longer than the links *g* and are normally in a position inclining backward while the links *g* are in an approximately upright po-

sition, the front end of the main plane c is moved forward and upward while the rear edge of the said plane is moved forward and downward so that the angle of incidence is altered as desired. The turning of the hand-wheel n^1 in the reverse direction brings the plane back into the position shown.

p, p are rods, the upper ends of which are hinged to the plane c and the lower ends of which are connected by means of the tie wire q , the said tie-wire q being made in two parts connected together by the double nut r and screws r^1, r^2 . From the lower ends of the rods p there also extend the tie-wires s to the plane, these tie-wires and rods having for their object to give the plane the necessary rigidity and strength.

As above described, when it is desired to reduce the width of the machine for the purpose of transit or for storage, the plane c is turned on the table e so that it lies longitudinally of the machine frame. To enable this to be done it is necessary to disconnect the two parts of the tie-wire q and turn the rods p and wires s up beneath the plane.

Claims:

1. An aeroplane comprising a frame, a plane, pivoted arms connecting the forward part of said plane with said frame, said arms being connected for joint movement and pivoted upon said frame, independent links connecting the rear part of said plane with said frame and a single arm depending below the frame for turning said arms upon their pivotal connection with said frame, said construction providing that a rearward movement of said depending arm will cause the forward part of said plane to move forwardly and upwardly and also cause the links to follow the movement of said arms and move the rear portion of said plane forwardly and downwardly, and the reverse movement of said depending arm will give the forward and rear portions of said plane the reverse movement.

2. An aeroplane comprising a frame, a plane mounted transversely thereon, a pair of arms rigidly connected together and pivoted upon said frame at or near the front of the same, said arms being pivoted also to the front of the plane, a pair of links pivoted at or near the rear of the frame and to the rear of said plane, the said arms being of greater length than said links and normally inclining rearwardly, the said links being normally in a substantially vertical position, and means for vibrating the said arms whereby the forward movement of said arms will move the forward end of said plane forwardly and upwardly and the rear end of said plane forwardly and downwardly, and the reverse movement of said arms will produce the reverse movement in the plane.

3. An aeroplane comprising a frame, a plane, a shaft extending across said frame, arms extending upwardly from said shaft and pivoted to the forward portion of said plane, a pair of links connecting the rear portion of said plane and said frame, an arm secured to said shaft, and means connected with said arm for oscillating said shaft, the said arms and said links connecting said plane and said frame, so that the forward movement of said arms will cause the forward portion of said plane to move forwardly and upwardly and the rear portion of said plane to move forwardly and downwardly.

4. An aeroplane comprising a frame, a plane normally transverse of the same, means adapted to simultaneously move the front of the plane forwardly and upwardly and the rear forwardly and downwardly longitudinally of the frame, and means whereby the plane may be caused to assume a position parallel with said frame.

5. An aeroplane comprising a frame, rods pivoted to said frame, an annular table to which the upper ends of said rods are pivoted, a ring mounted upon said annular table and capable of turning thereon, a plane mounted upon said ring and being capable of movement longitudinally along said frame, and means for controlling the longitudinal movement of said plane.

6. An aeroplane comprising a frame, a spindle rotatably mounted in bearings on said frame, a plurality of front rods, the lower ends of which are rigidly secured to said spindle, rear rods pivoted at their lower ends to said frame, a plane mounted upon a suitable support secured to the upper ends of said rods, a downwardly projecting arm rigidly secured at its upper end to said spindle, a link pivoted to said arm, said link having a nut pivoted to its lower end, a rod provided with a screw threaded extension adapted to be engaged by said nut and a hand wheel secured to said rod adapted to control the longitudinal movement of said plane.

7. An aeroplane comprising a frame, a plane normally transverse of the same, means adapted to simultaneously move the front of the plane forwardly and upwardly and the rear forwardly and downwardly longitudinally of the frame, a plurality of rods hinged to said plane, suitable fastening means joining said rods, tie wires extending from different points on said plane to the lower ends of said rods, the tie wires, rods and fastening means combined being adapted to secure the plane in its transverse position on the frame.

8. An aeroplane comprising a frame, a plane mounted normally transversely thereon and capable of assuming a position par-

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allel therewith, a plurality of rods hinged to said plane, suitable fastening means joining said rods, tie wires extending from different points on said plane to the lower ends
5 of said rods, the tie wires, rods and fastening means combined being adapted to secure the plane in its transverse position to the frame and allow the plane to assume a position parallel with said frame, when the fastening means is released.

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Witnesses:

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