

A. M. COLLINS.
BALANCING DEVICE.
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1,001,123.

Patented Aug. 22, 1911.

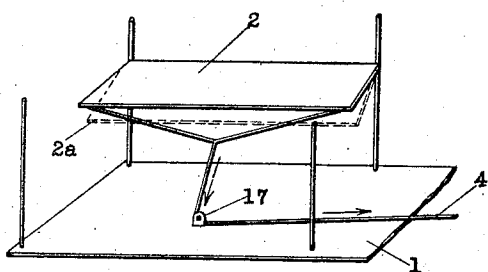


Fig 1

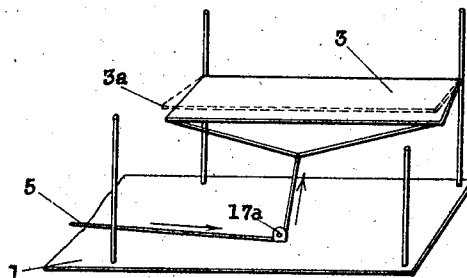


Fig 2

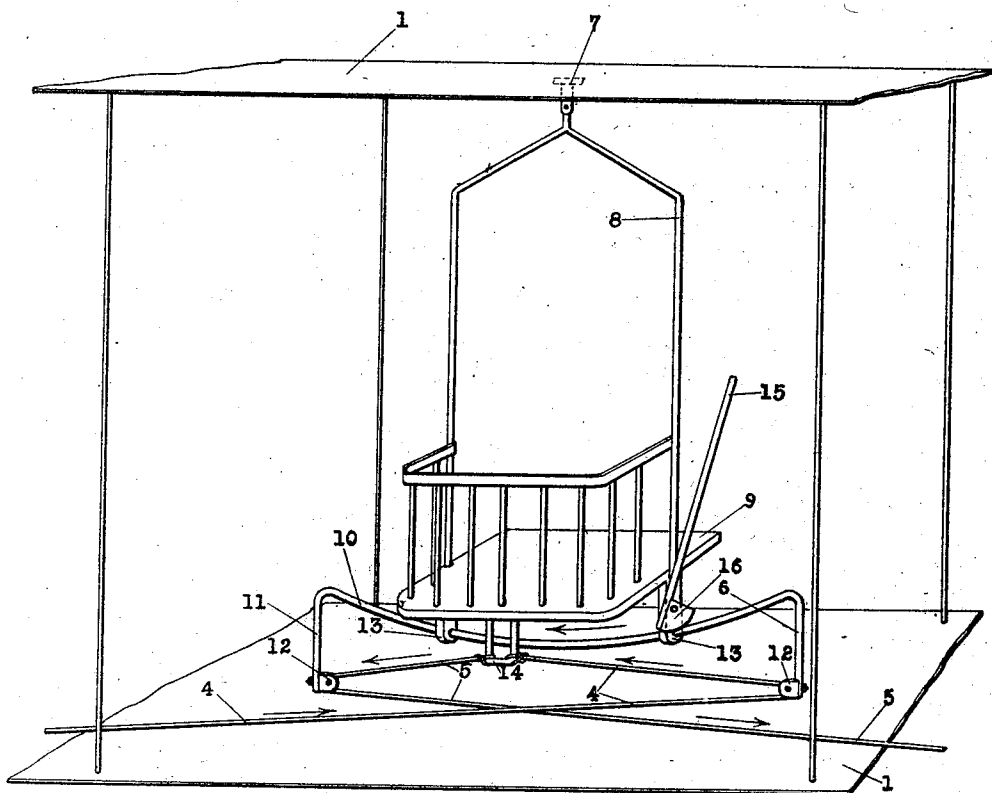


Fig 3

WITNESSES:

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ALBERT M. COLLINS, OF PORTLAND, OREGON.

BALANCING DEVICE.

1,001,123.

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To all whom it may concern:

Be it known that I, ALBERT M. COLLINS, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Balancing Devices, of which the following is a specification.

My invention relates to improvements in balancing devices for aeroplanes and has for its object to provide a weight suspended at the central portion of the frame-work, and by means of pulleys and cords connecting the weight with the balancing planes, the latter will be operated automatically. I attain this object by the mechanism illustrated in the accompanying drawing, in which—

Figure 1, is the left balancing plane, as seen from the rear. Fig. 2, is a similar view of the right balancing plane. Fig. 3, shows an aeroplane equipped with a suspended seat and adapted to control the balancing planes.

In the drawing 1 represents an aeroplane. 2 is the left balancing plane, hinged by the front edge, to the framework of the machine, so that it may swing freely; and in operation the plane 2 will assume a position represented by the dotted line 2^a. The right balancing plane 3 is shown beneath the top plane and the position assumed by it when the aeroplane is in motion is indicated by the dotted lines 3^a.

Suspended from the top of the frame-work, at the central portion is the operator's seat 9, mounted to swing freely from side to side. The cord 4, or any other suitable means of connection, which is divided so as to attach to each of the free corners of the balancing plane 2, passes downward, under the pulley 17 and up over a pulley 12 or other suitable bearing mounted on the post 6 and thence to the seat where it is secured at 14. Likewise a similar cord is secured to each of the free corners of the plane 3, whence it passes under the pulley 17^a and up over a pulley 12 or other bearing mounted on post 11, thence to the seat where it is secured, as indicated, at 14. These cords should be so adjusted that each of the balancing planes will stand at a horizontal position, when the seat or other weight suspended at the central portion of the machine, is in a vertical position and the frame is horizontal.

It will be seen that when a side of the aeroplane, as the left side, is lowered, the

seat or central weight, will seek to maintain its vertical position and, therefore, swing to the left, relatively. As it does so it will draw upon the cord 4, pulling downward the free edge of the plane 2, causing it to present a broader surface against the air and to increase the lifting power of the left side of the aeroplane. The same movement will slacken the cord 5 and allow the plane 3 to move toward a horizontal position, thus reducing its resistance against the air, and causing a like reduction in the lifting power of the right side of the aeroplane. The right side will thus tend to be lowered, while the left side will rise. Should the right side of the aeroplane sink below a horizontal position, the seat or central weight will swing to the right, relatively, causing the reverse of the movement above described, to take place. In this manner any lowering of either side of the aeroplane will cause a corresponding relative movement of the central weight to that side, releasing the opposite balancing plane and pulling downward that on the side which is lowered, which immediately rights the aeroplane.

9 is a seat attached by means of rods 8 to the pivot 7. The base of the seat is provided with depending bearings 13 to receive the curved rod 10, which is mounted on the upright posts 11 and 6. This prevents the seat from moving backward and forward.

15 is a lever, with which the operator can lock the seat at any position along the said curved rod by the eccentric brake 16. By means of this lock the operator can set the balancing planes in such position as to take advantage of the currents of air in the same manner that the sails of a boat will do. Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is,

The combination with an aeroplane comprising a frame-work having hinged balancing planes, and a seat pivotally suspended from the top of the frame-work, of depending bearings on said seat,—a curved guide-bar passing through said bearings and attached to said frame-work in such manner as to permit the seat to swing transversely thereon,—an eccentric locking device provided with a lever attached to the side of said seat so as to engage the guide-bar and lock the seat thereto,—a pulley mounted near each end of the guide-bar and one under each balancing-plane,—and cords attached

to the under side of the seat, one passing to
the right over a pulley, another passing to
the left over a pulley, thence each cord re-
turns under the seat, passing under a second
5 pulley, thence to its respective balancing
plane with which it is connected, whereby
any lateral movement of the seat with refer-
ence to the frame-work will draw downward

the free edge of the balancing plane toward
which it moves.

In testimony whereof I affix my signature
in presence of two witnesses.

ALBERT M. COLLINS.

Witnesses:

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