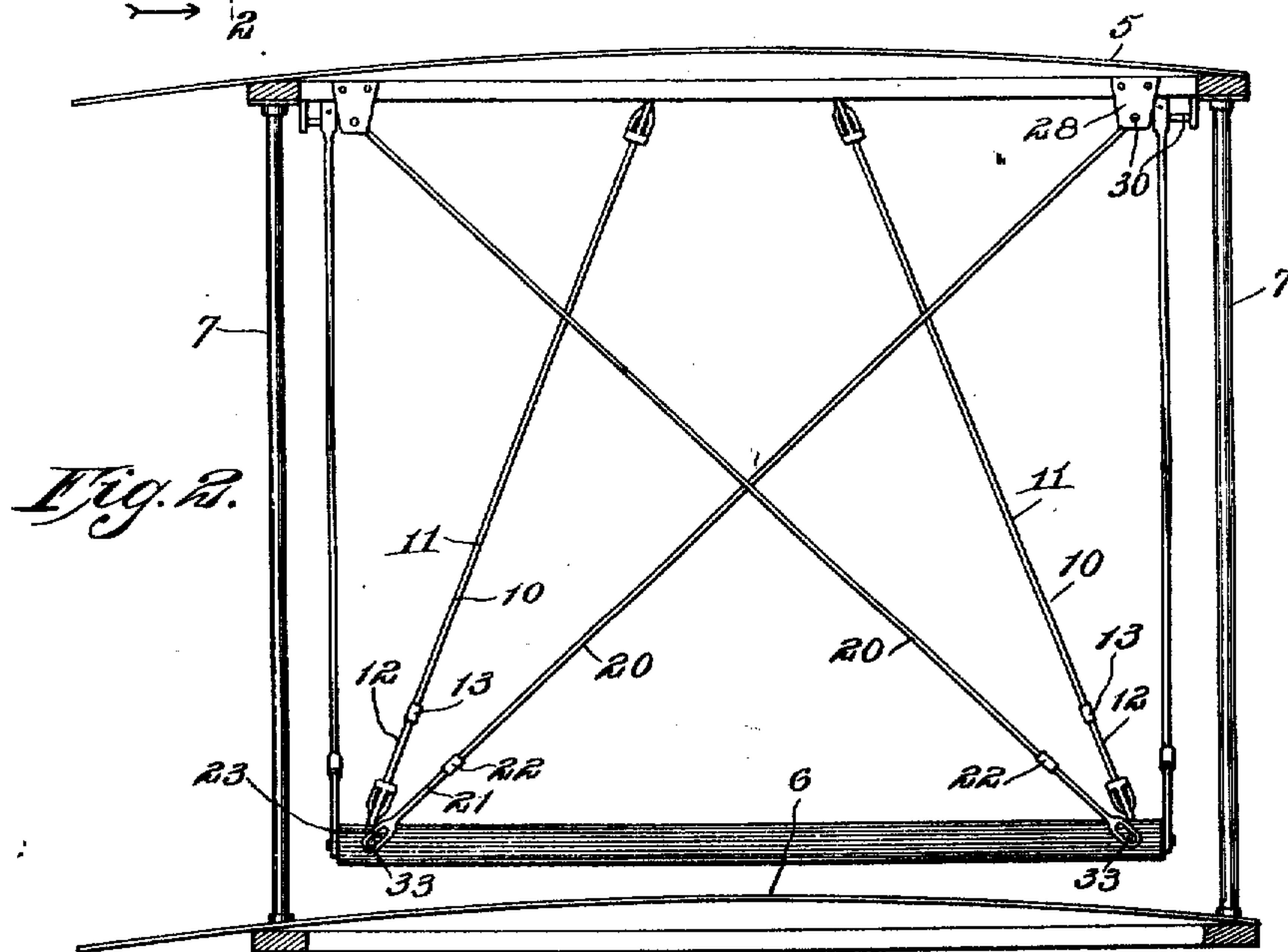
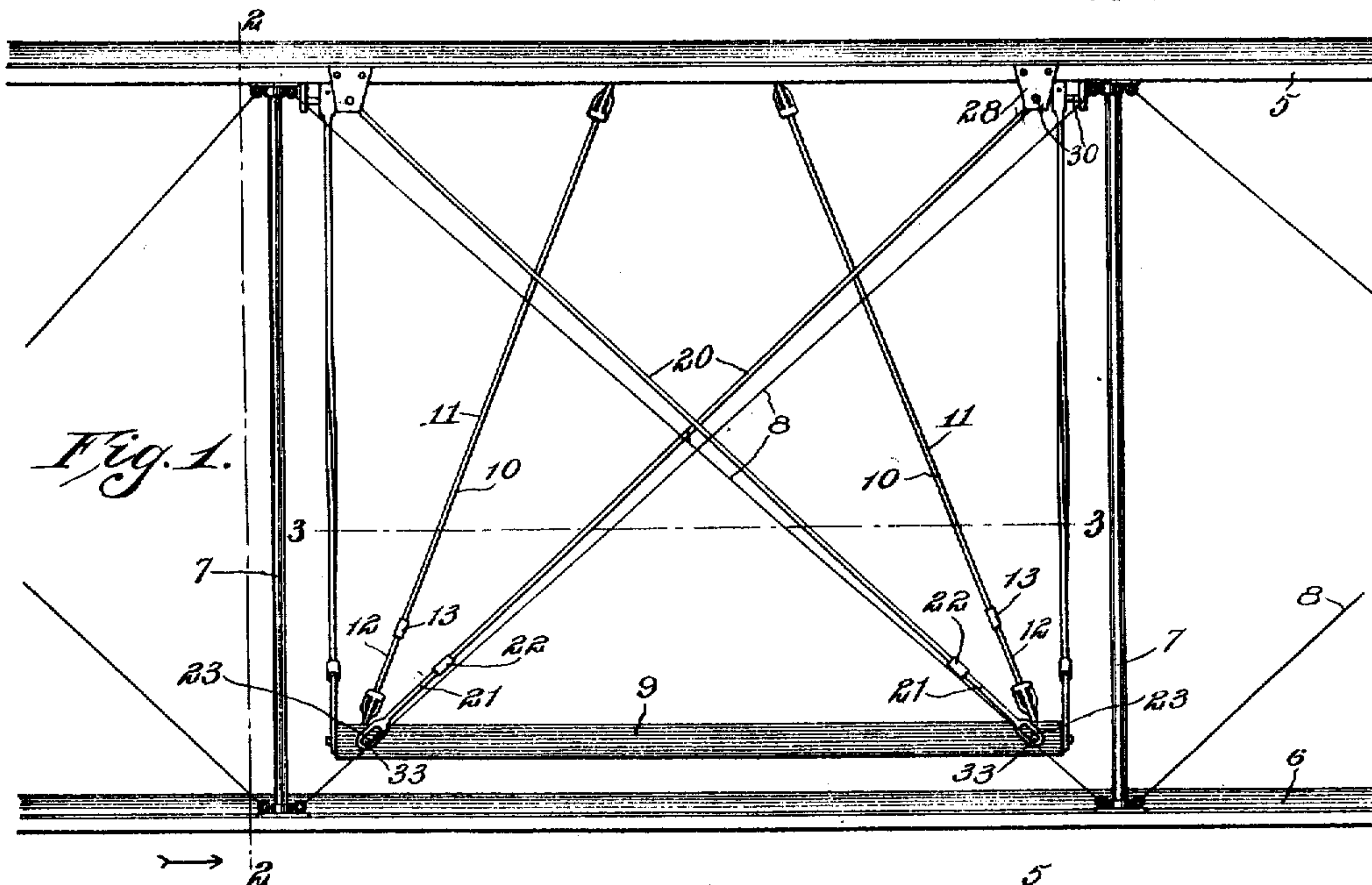


G. P. N. SADLER.
ATTACHMENT FOR AIRSHIPS.
APPLICATION FILED AUG. 28, 1910.

999,125.

Patented July 25, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

Fig. 3.

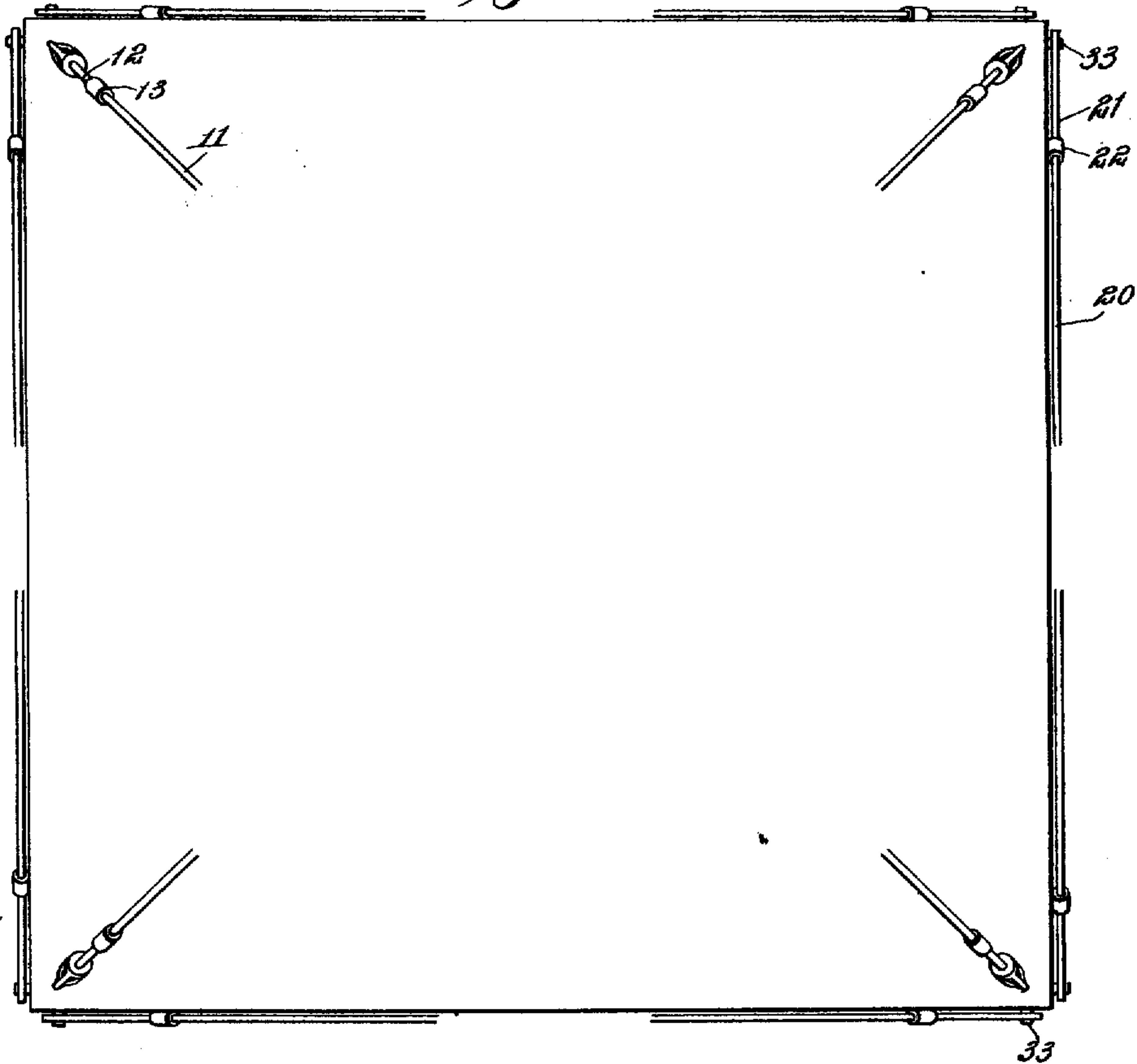


Fig. 4.



Fig. 5.

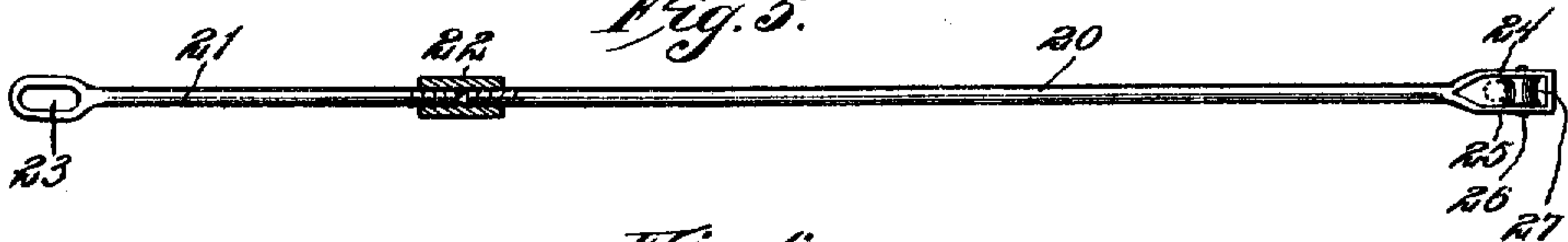
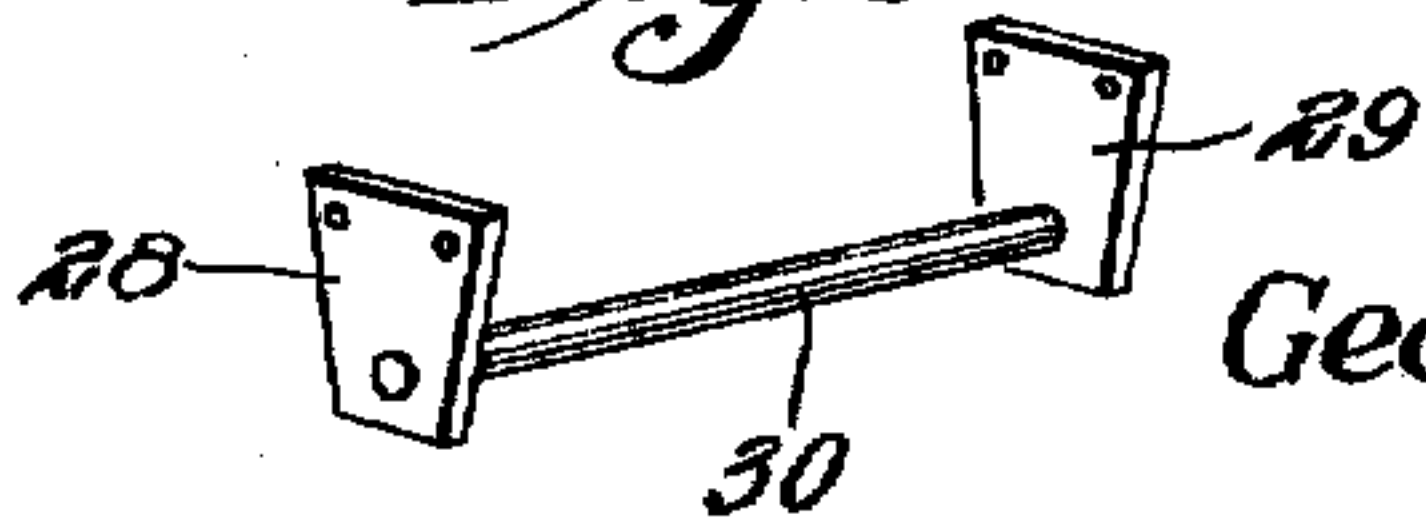


Fig. 6.



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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR AIRSHIPS.

999,125.

Specification of Letters Patent. Patented July 25, 1911.

Application filed August 29, 1910. Serial No. 579,375.

To all whom it may concern:

Be it known that I, GEORGE P. N. SADLER, a citizen of the United States, residing at Attica, in the county of Fountain and State of Indiana, have invented new and useful Improvements in Attachments for Airships, of which the following is a specification.

This invention relates to attachments for airships and has for its object the provision of a weight member suspended for swinging movement on the ship and adapted to move relative to the ship during the dipping movement of the latter, thus shifting its center of gravity to one side of the center of gravity of the ship and remaining in such position until the ship assumes its normal position in the air with its center of gravity in alinement with the center of gravity of the weight.

With the above and other objects in view, which will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims; it being understood that various changes in the form, proportion, size, and minor details of the device may be made, within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, forming part of the specification:—Figure 1 is a front elevation of an ordinary biplane, minus the propelling and steering mechanism, with my improved device applied thereto. Fig. 2 is a sectional end view approximately on the line 2—2 of Fig. 1 and looking in the direction of the arrow. Fig. 3 is a sectional plan view on the line 3—3 of Fig. 1. Fig. 4 is a detail side elevation of one of the suspending rods showing one end thereof in longitudinal section. Fig. 5 is a similar view of one of the rods for swinging the weight under relative dipping movement of the ship. Fig. 6 is a detail perspective of one of the brackets which support the upper end of the rods illustrated in Fig. 5.

Similar numerals of reference are employed to designate corresponding parts throughout.

The upper and lower planes of the ve-

hicle illustrated in the drawings are designated respectively by the numerals 5 and 6, the stanchions or supports connecting and holding the planes in spaced relation being designated by the numeral 7, and the trusses, extending diagonally of the space between the stanchions or supports and bracing the latter being designated by the numeral 8. Since these parts are all of well-known construction a detail description of the same need not be given.

The device forming the subject matter of the present invention comprises a rectangular-shaped weighted platform designated in general by the numeral 9. This member is preferably of metal and is somewhat less in area than the area bounded by the stanchions or supports and the central portion of the aeroplane. As shown in Fig. 1 this weight member or platform is positioned centrally of the biplane and adjacent to the lower plane 6 thereof and is suspended by means of a plurality of rods 10 secured at one end at the opposite corners of the platform and at their opposite ends to the upper plane 5.

Since the suspending rods are all identical in structure a description of one will be sufficient.

By reference now to the drawings it will be seen that each suspension rod comprises a pair of sections designated by the numerals 11 and 12, the sections 11 and 12 being unequal in length and arranged end to end, their adjacent ends being exteriorly screw-threaded and coupled by means of a turn-buckle 13. By the provision of the turn-buckle it will be manifest that the suspending rods are extensible. The outer ends of the sections 11 and 12 terminate in hemispherical heads 14, the function of which will presently appear. Connection between the opposite ends of the suspension rods and the upper plane 5 and platform is established by means of a plurality of sockets which receive the heads 14. These socket members are each formed of two sections designated by the numerals 15 and 16. The section 15 comprises a bulged body portion, one end of which terminates in a semi-circular exteriorly threaded shank 17, the opposite end of the bulged body portion being curved slightly inward and medially provided with a semi-circular recess. The opposite section 16 is similarly formed, its opposite shank 18 bearing on the shank 17,

and when so bearing will coöperate with the shank 17 to provide a cylindrical shank for the reception of a nut 19. The space between the bulged portions of the sections is of a size to nicely receive the hemispherical heads 14 of the suspension rods. As shown in the drawings the shanks formed by the shank sections 17 and 18 are insertible through oblique openings formed adjacent to the four corners of the platform 9, the nuts 19 being screwed onto the shanks and binding on the lower face of the platform. The upper ends of the suspension rods are secured in similar sockets which descend from the central portion of the upper plane 5, the sockets on the said upper plane 5, overlying the central portion of the platform 9, so that when the suspension rods are positioned as shown in Fig. 1 they will incline upwardly and inwardly. The suspension rods are somewhat less in length than the distance between the upper and lower planes so that the platform 9 will be supported above the lower plane 6, and by virtue of the hemispherical heads and sockets, the platform will be permitted to have universal swinging movement to a limited extent.

Having now described the platform and the connection between the latter and the biplane a description of the means operating to move the platform relative to the biplane or vehicle when the latter tilts or dips, will be given. Reference now to the drawings discloses the fact that a plurality of rods serving as auxiliary supports, connect the platform with the upper plane 5. These auxiliary supports are arranged on the four sides of the platform the rods on each side crossing each other at their middles so that when the platform swings in one direction beyond a certain point a pull will be exerted on certain of the supports which extend upwardly and in a direction opposite to that in which the platform tends to move, whereupon said rods will operate to pull the platform in a direction opposite to that in which the biplane dips or tilts.

Since the auxiliary supports are all identical in structure a description of one will be sufficient.

By reference now to the drawings it will be seen that each of the auxiliary supports comprise two sections designated by the numerals 20 and 21. The sections 20 and 21 are unequal in length and are arranged end to end, their adjacent ends being exteriorly screw-threaded and coupled together by means of a turn-buckle 22. The free end of the shorter section 21 is provided with an oblong loop or eye 23, while the corresponding end of the longer section 20 ends in a frame-like structure or yoke, the opposite sides of which are designated by the numerals 24 and 25. Arranged in the sides 24

and 25 are the opposite ends of a shaft 26 upon which is rotatably mounted a grooved shift 27. It might here be stated that the auxiliary supports are somewhat greater in length than the suspending members, their upper ends being connected with suitable brackets, to be presently described, said brackets being in vertical alinement with the four corners of the platform, when the latter is in its normal position, the lower ends of said auxiliary supports being pivotally connected at the corners of the platform.

Since the brackets which connect the upper ends of the auxiliary supports are all identical in structure a description of one will be sufficient.

By reference now to the drawings it will be seen that each bracket includes a substantially U-shaped body portion, the opposite limbs of which are designated by the numerals 28 and 29, and the horizontal portion or rod connecting said limbs being designated by the numeral 30. The horizontal portion or rod 30 is circular in cross section and forms a track. The opposite limbs 28 and 29 have openings for the reception of screws or other fastening means to secure them to the frame of the upper plane 5.

By reference now to the drawings it will be seen that the horizontal portions or rods 30 of the brackets which connect the auxiliary supports at the front and rear sides of the platform, extend in the direction of the length of the upper plane 5, while the corresponding portions of the brackets which connect the upper ends of the auxiliary supports are arranged at the opposite ends of the platform, and extend in the direction of the flight of the biplane or across the upper plane 5.

Extending laterally from the four sides of the platform 9 and adjacent to the corners thereof are bearing pins 33, which are insertible through the eyes or loops 23 at the lower ends of the auxiliary supports, the shifts 27 at the upper ends of the auxiliary supports bearing on the horizontal portions 30 of the brackets.

When the biplane or vehicle is in a horizontal position the weighted platform will also occupy a horizontal position while the upper ends of the supports 20 will occupy positions midway of the ends of track rods 30. When the biplane or vehicle is tilted longitudinally the upper ends of the supports 20 will ride downwardly on the track rods 30 while the platform owing to its swinging supports will retain its horizontal position and through its gravity pull resist the tilting of the biplane or vehicle. The swinging connection of the upper ends of the supports 20 with the track rods 30 permits of this balancing when the biplane or vehicle is tilted transversely.

From the foregoing, it is evident that I

have provided a device which is comparatively simple in structure and inexpensive to manufacture, embodying few parts and these so arranged that the danger of derangement will be reduced to a minimum.

I claim:—

1. In an air vehicle, the combination with a biplane structure of swinging supports secured to the uppermost plane thereof, a weight member supported on the lower ends of the supports over the lower plane, supports slidably connected with the weight member and means for supporting said last supports adapted to permit of a sliding and swinging movement thereof.

2. In combination with a biplane air vehicle, a weighted platform disposed over the lower plane, swinging supports connecting the platform to the upper plane, track rods mounted on the upper plane, rods having sliding and swinging connection therewith and provided with slotted lower ends, and pins extending through said ends into the platform.

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

GEORGE P. N. SADLER.

Witnesses:

ABEL T. CLAYPOOL,
ORRAN W. KEEFER.

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