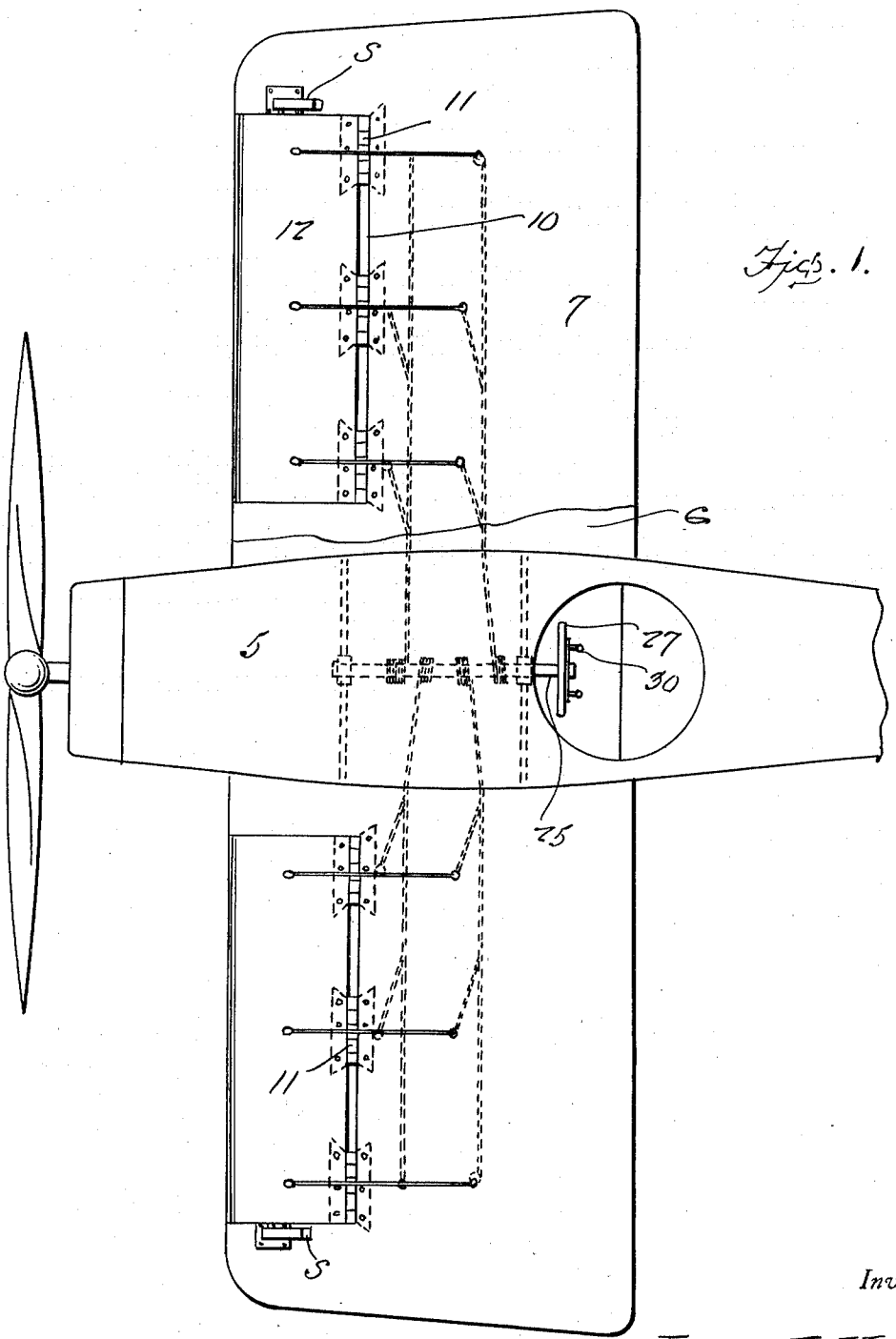
Oct. 22, 1929. L. L. YOCK 1,732,873

AEROPLANE

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Figs. 1.

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AEROPLANE

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Fig. 2.

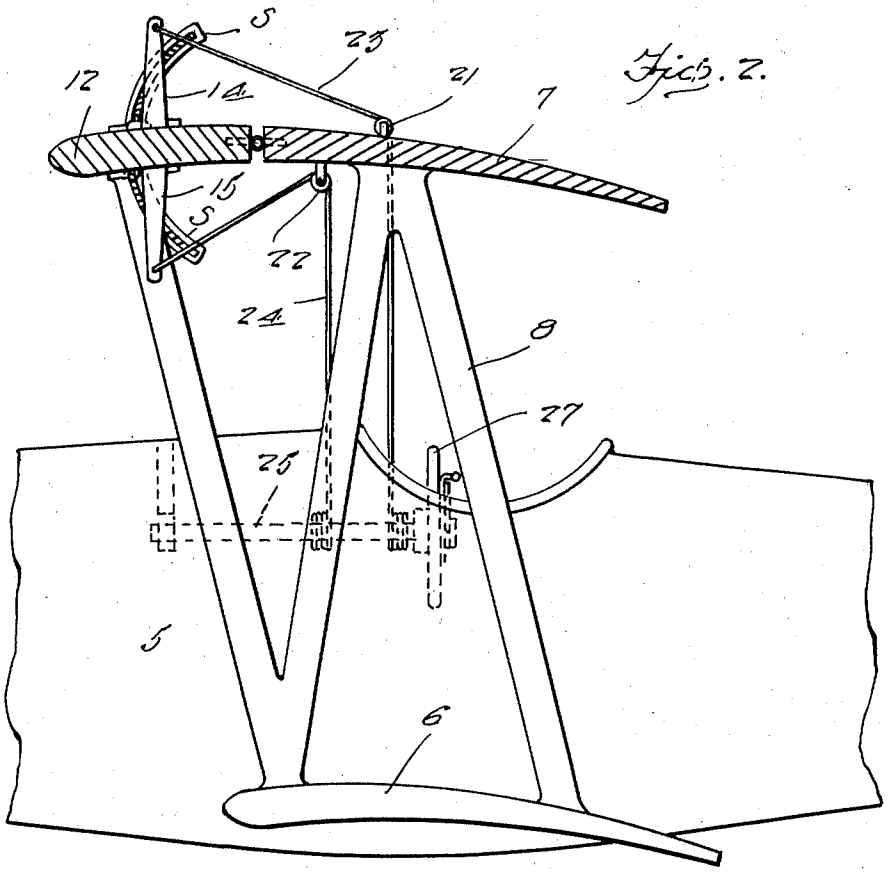
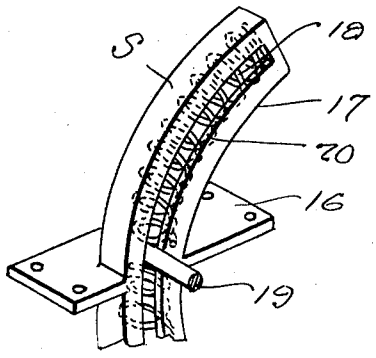


Fig. 4.



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Fig. 3.

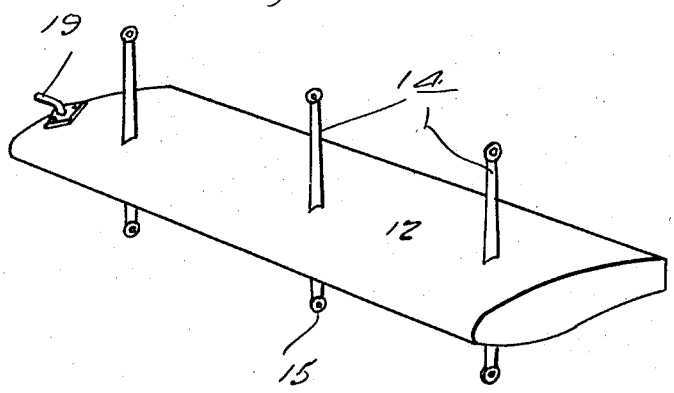


Fig. 5.

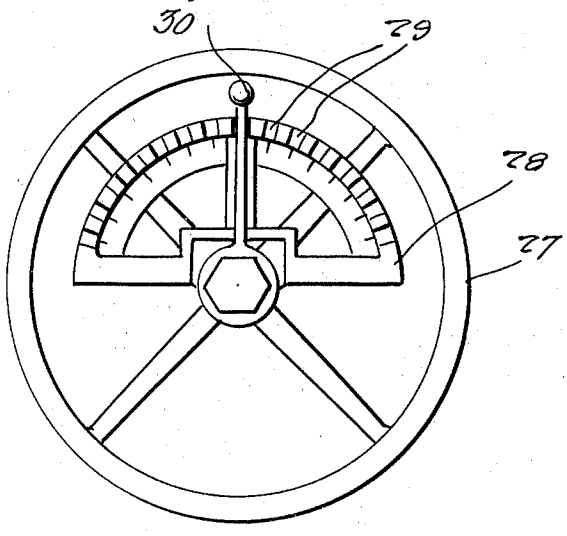
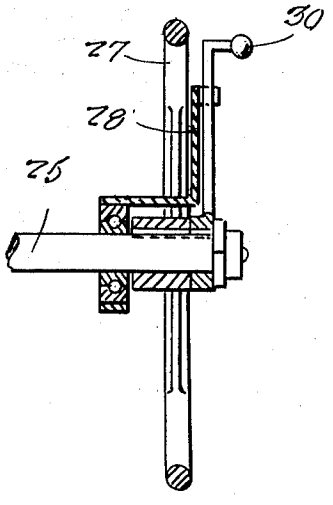


Fig. 6.



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UNITED STATES PATENT OFFICE

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AEROPLANE

Application filed April 7, 1928. Serial No. 268,214.

The present invention relates to aeroplanes and more particularly to improvements in the control means therefor and has for its prime object to provide a wing structure which has forward sections hingedly mounted and controllable from within the fuselage.

A still further very important object of the invention resides in the provision of an improved aeroplane structure of this nature which is simple, strong and durable, easy to handle, convenient, thoroughly efficient and reliable in use and operation, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view, as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a top plan view of an aeroplane embodying the features of my invention showing parts broken away.

Figure 2 is a fragmentary side elevation thereof showing the upper wing section.

Figure 3 is a perspective view of one of the hinged sections of the upper wing.

Figure 4 is a perspective view of one of the spring devices.

Figure 5 is a detail view of the control wheel, and

Figure 6 is a section therethrough.

Referring to the drawing in detail, it will be seen that I have illustrated a bi-plane, but it is to be understood that the novel features of this invention are adaptable to a monoplane or any other kind of aeroplane now in common use, or such as may be in the future developed. Referring to the particular example disclosed in detail, in the accompanying drawing, it will be seen that the numeral 5 denotes a fuselage, with the lower wing structure 6 and an upper wing structure 7 braced in respect to each other in any conventional or preferred manner, as indicated at 8. With the exception of the wing structure 7, the parts thus far described are quite conventional or may be varied as desired. The wing structure 7 is provided at each side of the fuselage with cut-outs 10, in the forward edge thereof, in which cut-outs are hingedly mounted, as at 11, wing structure segments 12, each segment 12 having a plurality of arms 14 rising therefrom and a plurality of arms 15 depending therefrom. A spring device S is associated with each wing segment 12 at the outer end thereof, extending upwardly from the wing structure and downwardly therefrom. Each spring device S comprises a base 16, secured to the wing structure 7 at the outer side of the cut-out 10 and having rising and depending therefrom and curving rearwardly a casing 17, in which are housed springs 18. Fingers 19 project from the wing segments 17 into slots 20 of the casing 17 between the springs.

When the wing segments are swung upwardly the springs of the upper casings are compressed, whereas when the wing segments are swung downwardly, the springs in the lower casings are compressed. Sleeves 21 and 22 are mounted above and below respectively the wing 7, and have cables 23 and 24 trained thereover, respectively, and engage respectively with arms 14 and 15. A shaft 25 is journaled in the fuselage 6, and the cable 23 is wound thereabout in one direction, and the cable 24 is wound thereabout in the other direction. A control wheel 27 is rotatable about the shaft 25 and has fixed thereto a bracket 28, with a plurality of notches 29 formed therein. A crank 30 is keyed on the shaft and engageable with the notches 29.

It will thus be seen that the wing segments may be raised or lowered at will by the pilot, for instance, if the aeroplane should suddenly turn into a nose dive, the wing segments may be raised or tilted at any degree, and thus the pilot may easily right the plane. The pilot may glide and dip at will, by lowering the segments until the safe landing is made. If the aeroplane goes into a tail spin, the pilot may tilt the wing segments upwardly, consequently throwing the nose down and tail up, thereby righting the plane. Obviously, the aeroplane equipped with these segments may take off more easily, since they may be tilted upwardly at an angle.

It is thought that the construction, utility, operation and advantages of this invention will now be quite apparent to those skilled in the art, without a more detailed description thereof. The present embodiment of the invention has been disclosed in detail merely by way of example, since in actual practice it will attain the features of advantage enumerated as desirable in the statement of the invention and the above description.

Various changes in the details of construction and in the combination and arrangement of parts may be resorted to, without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:

1. In an aeroplane, a wing having a cut out at the forward edge thereof, wing segments in the cut-out, means for hinging the rear edge of the segment in the cut-out, spring devices for holding the wing segments in substantially the same plane with the wing, and means for swinging the segments out of the plane of the wing, each spring device comprising an arcuate casing concentric with respect to the hinged means, a spring in the casing, said casing having a slot, and a finger projecting from the segment and impinged against by the spring.

2. In an aeroplane, a wing having a cut-out at the forward edge thereof, wing segments in the cutout, means for hinging the rear edge of the segment in the cut-out, spring devices for holding the wing segments in substantially the same plane with the wing, and means for swinging the segments out of the plane of the wing, said last mentioned means comprising arms projecting upwardly and downwardly from the segments, cables extending from said arms, sheaths over which said cables are trained, a rotatable shaft, one cable being wound about the shaft in one direction and the other cable being wound about the shaft in the other direction, and means for rotating the shaft, each spring device comprising an arcuate casing concentric with respect to the hinged means, a spring in the casing, said casing having a slot, and a finger projecting from the segment and impinged against by the spring.

In testimony whereof I affix my signature.

LOREN L. YOCK.