Aug. 4, 1936. W. KROLL 2,049,910

AEROPLANE

Filed Oct. 18, 1934

Fig. 1.

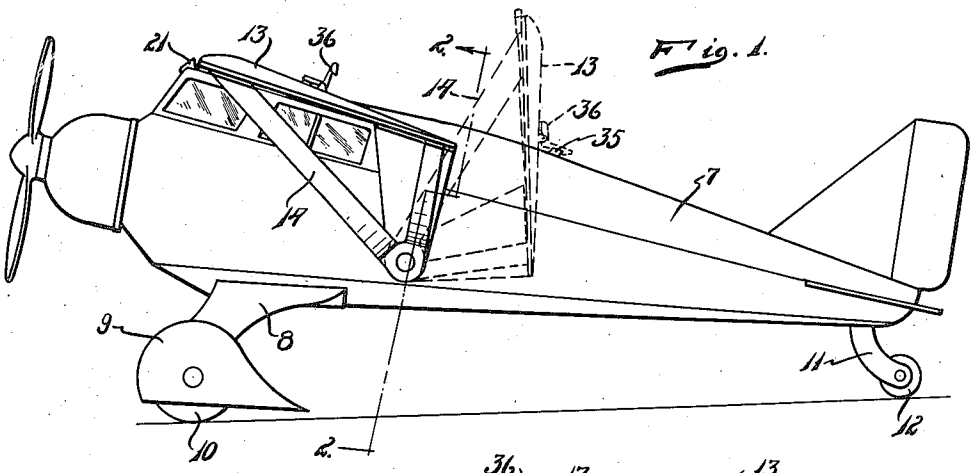


Fig. 2.

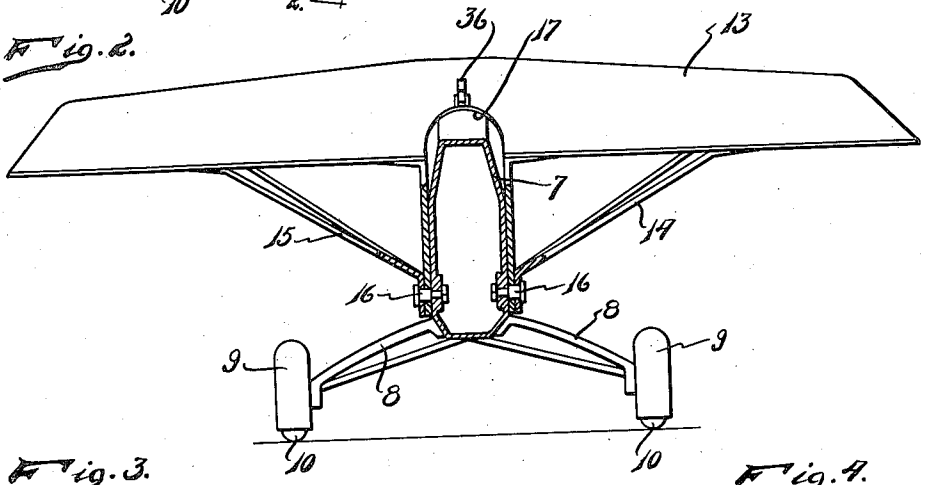


Fig. 3.

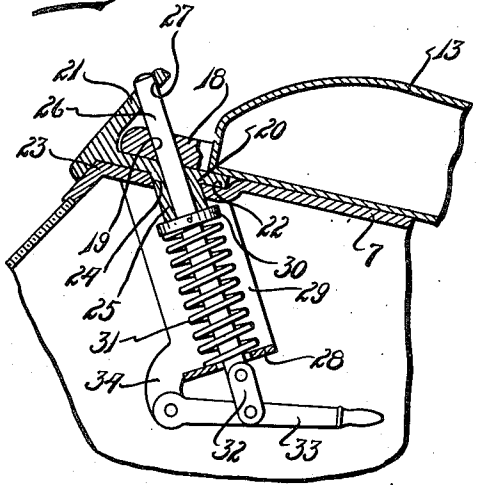
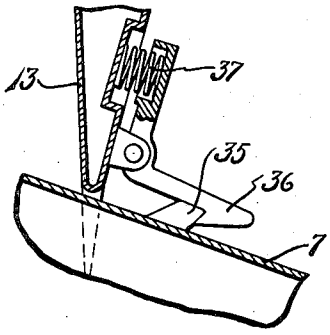


Fig. 4.



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Patented Aug. 4, 1936

2,049,910

UNITED STATES PATENT OFFICE

2,049,910

AEROPLANE

Walter Kroll, Detroit, Mich.

Application October 18, 1934, Serial No. 748,805

3 Claims. (Cl. 244—12)

My invention relates to a new and useful improvement in an aeroplane and has for its object the provision of an aeroplane so constructed and arranged that the wing thereof may be tilted to extend substantially vertically to the body so that when the body is descending in a vertical plane, the wing, when in its vertical position will serve as a retarding member to check the descent of the aeroplane.

It is another object of the invention to provide in an aeroplane a simple and effective method of mounting a wing on an aeroplane body so that it can be released for swinging into vertical position relatively to the body.

Another object of the invention is a provision of a device of this class which will be simple in structure, economical of manufacture, durable, compact, and highly efficient in use.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawing which forms a part of the specification and in which,

Fig. 1 is a side elevational view of the invention.

Fig. 2 is a view taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view illustrating the forward latching mechanism.

Fig. 4 is a fragmentary sectional view, slightly enlarged, indicating the rearward latching mechanism.

As shown in the drawing the invention comprises a body 7 having a landing gear 8 positioned adjacent the forward end so that the shield 9, which houses the wheel 10, terminates substantially at the forward end of the body. At the rear end of the body is an arm 11 carrying the wheel 12. The invention resides particularly in the wing 13 depending from which, at opposite sides of the body 7, are brackets or supporting braces 14 and 15 which are pivotally connected by means of the bolt 16 to the body 7. Formed at the rear edge of the wing 13, centrally thereof, is a notch 17.

Projecting outwardly from the forward end of the wing 13 is a tongue 18 having an opening 19 formed therein. Mounted on the body 7 is a plate 20 upon which is adapted to engage the tongue 18. This plate 20 is provided with the upwardly projecting end rearwardly inclined flange 21. It will be noted that the plate 20 lies in a recess 22 formed by offsetting the portion 23 of the body 7. Formed on the plate 20 and projecting through the opening 24 is a guide sleeve 25 through which projects the locking plunger 26. This locking plunger is also adapted to project through the plate 20 through the opening 19 and through the opening 27 formed in the flange 21. The plunger also projects through the base 28 of a bracket 29. Fixedly mounted on the plunger 26 is a collar 30 engaging against which is the spring 31, the other end of which engages against the portion 28 of the bracket 29. The spring 31 serves to normally maintain the plunger 26 moved into operative position as shown in Fig. 3. The lower end of the plunger 26 is connected by the link 32 to a lever 33 which is rockably mounted on the lug 34 projecting outwardly from the bracket 29.

Under normal conditions the wing would be in the position shown in full lines in Fig. 1 and the plunger 26 would be in locking or operating position as shown in Fig. 3. In the event the engine becomes disabled while in the air, the operator, by pressing downwardly on the lever 23, would withdraw the plunger 26 from operative position, and thus the wing 13 would be free to rock on its pivots. Should the aeroplane be headed for a crash the air pressure would force the wing to swing on its pivots into the dotted line position shown in Fig. 1. When in this position it will serve as an effective retarding agent in checking the downward plunge of the aeroplane. When swung to the position shown in dotted lines in Fig. 1, the hook 35 will engage behind the latch nose 36. The spring 37 serves to normally retain the latch nose 36 in operative position so that when the wing 13 swings to the dotted line position shown in Fig. 1 it will be locked in this position. By locating the landing gear forwardly of the body 7 it will be so located that it will strike the ground first, under normal conditions when the aeroplane is crashing, and serve to absorb the shock so that a safe landing may be effected.

While I have illustrated and described the preferred form of construction I do not wish to limit myself to the precise details of structure shown but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. An aeroplane of the class described, comprising: a body structure; a single wing positioned above said structure and extending outwardly from opposite sides thereof, the rear end

of said wing having a notch formed therein of a width greater than said body structure; means for pivotally mounting said wing on said body structure, said wing being swingable to lie in a plane parallel to said body structure and in a plane vertical to said body structure, said body engaging in said notch upon swinging of said wing into vertical position; a plate mounted on the upper surface of the forward edge of said body, said plate having an opening formed therein; a rearwardly-extending, inclined flange on the forward end of said plate having an opening in alignment with the opening of said plate; a tongue mounted on the forward edge of said wing and adapted to overlie said plate upon swinging of said wing to horizontal position, said tongue having an opening formed therein in registration with the opening in said plate; and a plunger carried by said plate projectable through said openings for locking said wing in horizontal position.

2. An aeroplane of the class described, comprising: a body structure; a single wing positioned above said structure and extending outwardly from opposite sides thereof, the rear end of said wing having a notch formed therein of a width greater than said body structure; means for pivotally mounting said wing on said body structure, said wing being swingable to lie in a plane parallel to said body structure and in a plane vertical to said body structure, said body engaging in said notch upon swinging of said wing into vertical position; a plate mounted on the upper surface of the forward edge of said body, said plate having an opening formed therein; a rearwardly-extending, inclined flange on the forward end of said plate having an opening in alignment with the opening of said plate; a tongue mounted on the forward edge of said wing and adapted to overlie said plate upon swinging of said wing to horizontal position, said tongue having an opening formed therein in registration with the opening in said plate; a tubular guide sleeve projecting downwardly from said plate at an incline thereto in registration with the opening in said plate; a plunger slidably projected through said guide sleeve and through the opening in said tongue and into the opening in said flange for locking said wing in horizontal position; and a spring for normally forcing said plunger into engagement in said openings.

3. An aeroplane of the class described, comprising: a body structure; a single wing positioned above said structure and extending outwardly from opposite sides thereof, the rear end of said wing having a notch formed therein of a width greater than said body structure; means for pivotally mounting said wing on said body structure, said wing being swingable to lie in a plane parallel to said body structure and in a plane vertical to said body structure, said body engaging in said notch upon swinging of said wing into vertical position; a plate mounted on the upper surface of the forward edge of said body, said plate having an opening formed therein; a rearwardly-extending, inclined flange on the forward end of said plate having an opening in alignment with the opening of said plate; a tongue mounted on the forward edge of said wing and adapted to overlie said plate upon swinging of said wing to horizontal position, said tongue having an opening formed therein in registration with the opening in said plate; a tubular guide sleeve projecting downwardly from said plate at an incline thereto in registration with the opening in said plate; a plunger slidably projected through said guide sleeve and through the opening in said tongue and into the opening in said flange for locking said wing in horizontal position; a spring for normally forcing said plunger into engagement in said openings; and a rockable lever for moving said plunger against the compression of said spring out of locking position.

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