C. D. McNAMARA.

AEROPLANE.

APPLICATION FILED MAY 4, 1921.

1,423,131. Patented July 18, 1922.

2 SHEETS—SHEET 1.

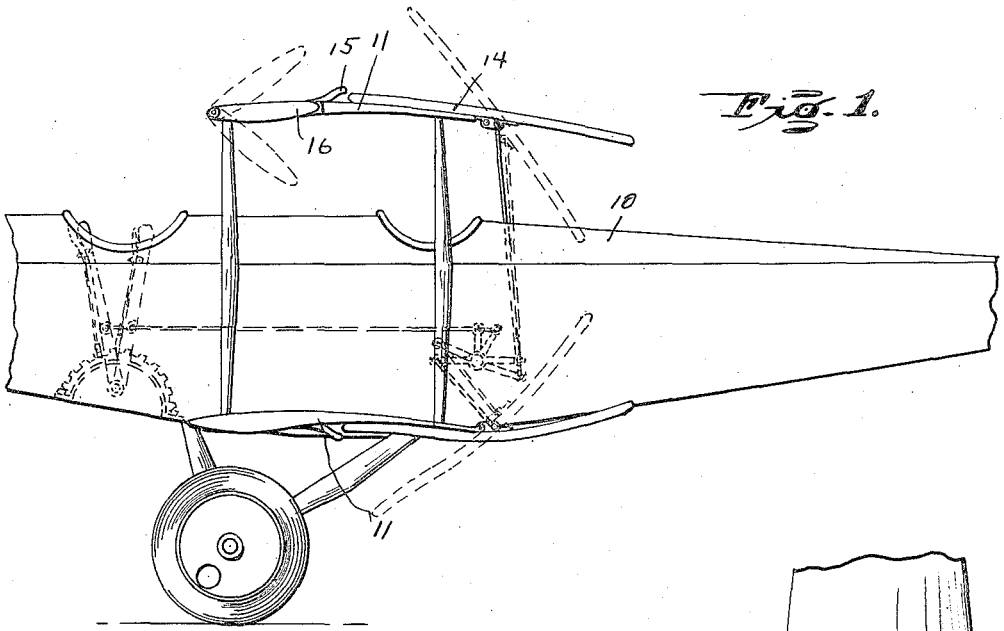
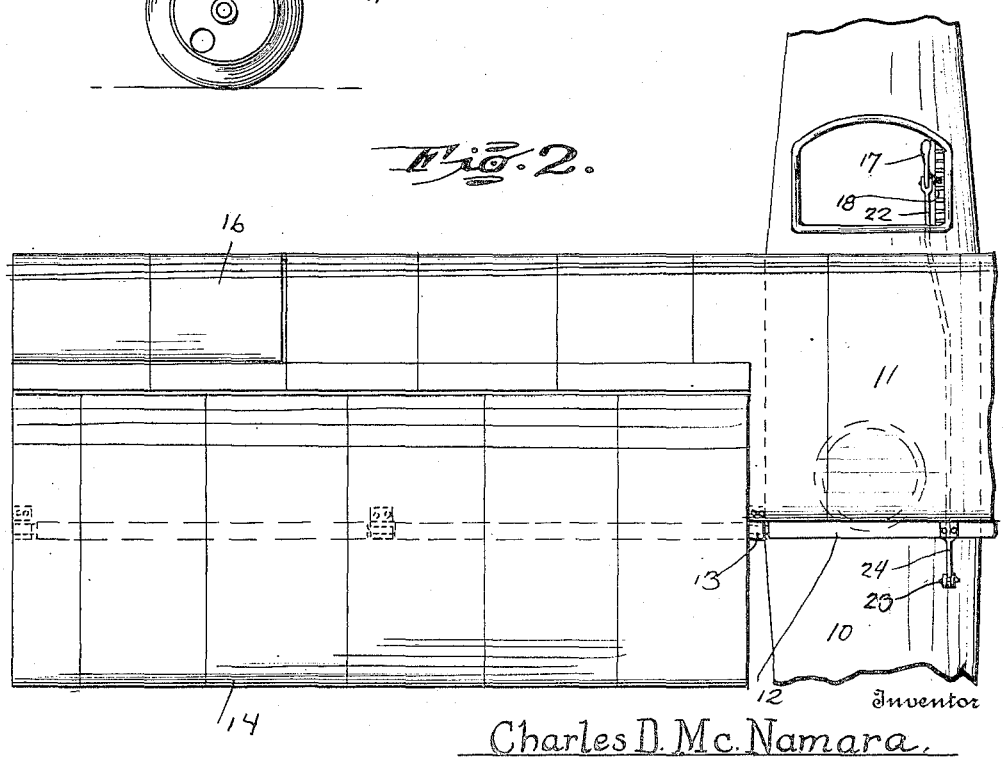


Fig. 1.

Fig. 2.



Inventor

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2 SHEETS—SHEET 2.

Fig. 3.

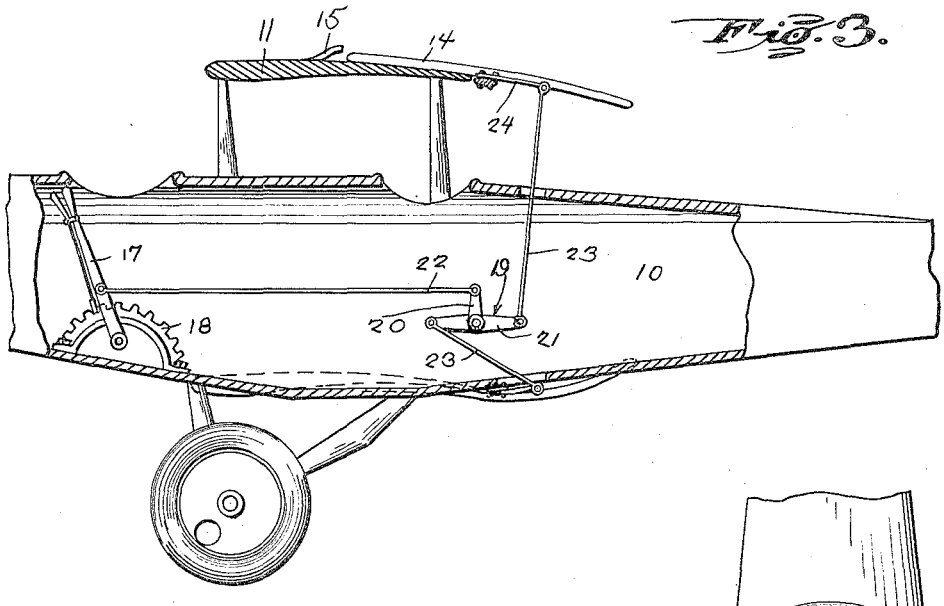
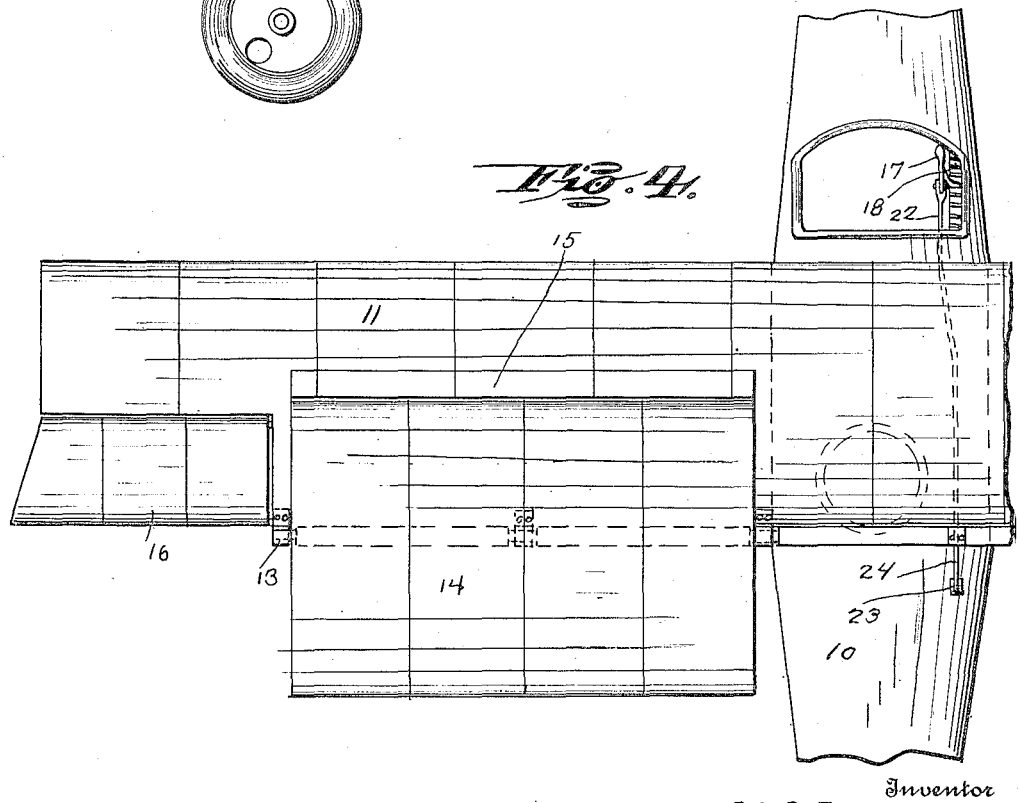


Fig. 4.



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UNITED STATES PATENT OFFICE.

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AEROPLANE.

1,423,131. Specification of Letters Patent. Patented July 18, 1922.

Application filed May 4, 1921. Serial No. 466,833.

To all whom it may concern:

Be it known that I, CHARLES D. McNAMARA, a citizen of the United States, residing at Fair Play, in the county of Park and State of Colorado, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in aeroplanes and has for an important object thereof the provision of auxiliary pivoted planes which may be shifted to check the motion of the aeroplane to enable landing upon a restricted surface.

A further object of the invention is to provide an auxiliary plane of this character, the construction and arrangement of which is such that during the ordinary flying conditions it in no manner interferes with the normal operation of the aeroplane.

A further object of the invention is to provide a device of this character in which the auxiliary plane is so balanced and arranged as to permit ready shifting thereof.

Other objects and advantages of the invention will become apparent throughout the course of the following description.

In the accompanying drawings, wherein for the purpose of illustration are shown preferred embodiments of my invention and wherein like reference characters designate like parts throughout:

Figure 1 is a side elevation showing an auxiliary plane constructed in accordance with my invention applied to the wings of a biplane;

Figure 2 is a plan view thereof;

Figure 3 is a longitudinal sectional view therethrough; and

Figure 4 is a fragmentary plan view showing a slightly modified auxiliary plane arrangement.

Referring now more particularly to the drawings, the numeral 10 indicates the fuselage of the aeroplane, the numeral 11, the planes thereof. While in all instances the aeroplane has been illustrated as being of the biplane type, it will hereinafter become apparent that the principle of construction employed with my auxiliary plane may be applied to monoplanes or any of the multiple plane types with the same results.

In accordance with my invention, the main plane 11 is provided upon its rear or trailing edge with a shaft 12 mounted for oscillation in bearings 13. This shaft 12 has secured thereto at each side of the body of the fuselage, auxiliary planes 14, the planes 14 being secured to the shaft approximately centrally thereof and being so constructed that when in the position shown in Figure 1, the auxiliary plane forms substantially a continuation of the main plane, in fact if so desired, the main plane may be materially shortened transversely and the rear section of the auxiliary plane 14 employed in lieu thereof. In order to prevent the wind or air pressure from entering beneath the forward edge of the auxiliary plane 14 when the same is in the position shown in Figure 1, I secure to the main plane in advance of the forward edge of the auxiliary plane, a buffer strip 15.

As will be obvious from an inspection of Figures 2 and 4, the auxiliary plane may extend entirely across the main plane at each side thereof, or may comprise merely a short section arranged at each side. Where the auxiliary plane 14 extends entirely across the main plane, it will of course be necessary to position the ailerons 16 in advance thereof. The construction shown in Figure 4 permits employment of the auxiliary plane 14 in conjunction with the usual wing construction but will not afford as great a resistive surface as the construction shown in Figure 2. The wings 14 being centrally pivoted upon the trailing edge, it will be obvious that upon shifting of the shaft about its pivot the pressure brought to bear upon the portions of the auxiliary plane lying upon the opposite sides of the pivot will be substantially equal, and accordingly no excessive strain need be placed upon the shifting gear.

In Figure 3 I have illustrated a shift gear suitable for use in conjunction with my auxiliary planes which consists in a pivoted lever 17 coacting with a notched segment 18. A bell crank 19 embodies a power arm 20 and a pair of oppositely directed work arms 21 is pivotally mounted in the fuselage, and has the power arm 22 thereof connected with the lever 17. The ends of the work arms 21 are connected by links 23 with the arms 24 secured to the shafts 12. It will be obvious that upon movement of the lever 17 rearwardly the auxiliary planes 14 will be swung to the position shown in dotted lines in Figure 1.

From the foregoing it will be obvious that

a device constructed in accordance with my invention will serve to materially check the head motion of an aeroplane in landing so as to permit the same to land upon a restricted surface such as the deck of a warship or the like. It will furthermore be obvious that the construction and arrangement of the auxiliary planes 14 may be altered without in any manner departing from the spirit of my invention, and I accordingly do not limit myself to the specific structure hereinbefore set forth except as hereinafter claimed.

What I claim is:

1. In an aeroplane, the combination with a main plane thereof, of an auxiliary plane pivoted at its transverse center to said main plane and shiftable about its pivot to engage and disengage the main plane, means to prevent air passing from what is the meeting edge of the auxiliary plane below said auxiliary plane and means for shifting said auxiliary plane.

2. In an aeroplane, the combination with a main plane thereof, of an auxiliary plane pivoted at its transverse center to said main plane and shiftable about its pivot to engage and disengage the main plane, a baffle secured to said main plane and coacting with what is the leading edge of the auxiliary plane to prevent the passage of air currents therebeneath, and means for shifting said auxiliary plane.

In testimony whereof I hereunto affix my signature.

CHARLES D. McNAMARA.