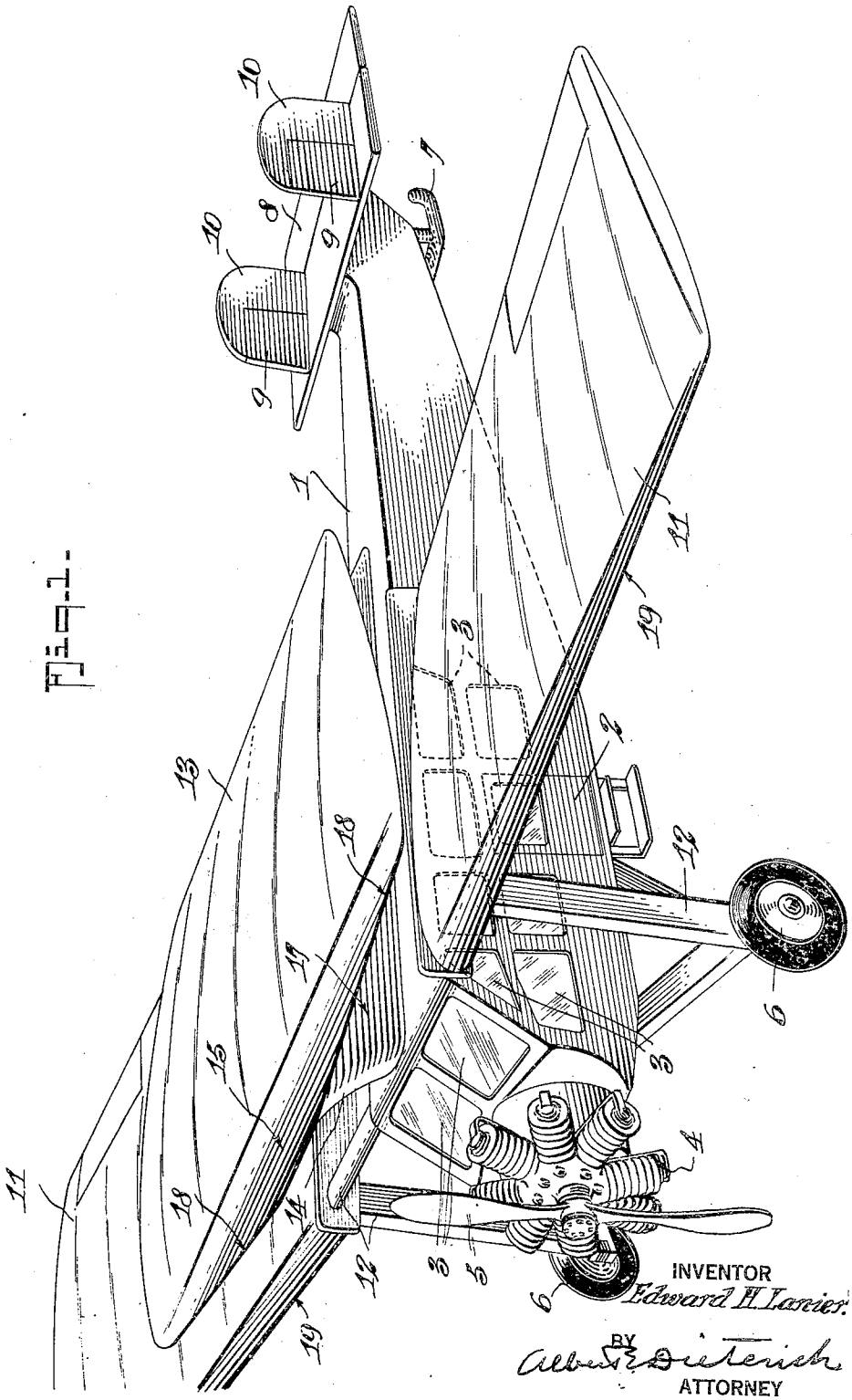
May 5, 1931. E. H. LANIER 1,803,805

AEROPLANE

Filed Sept. 20, 1930 4 Sheets-Sheet 1

Fig. 1.

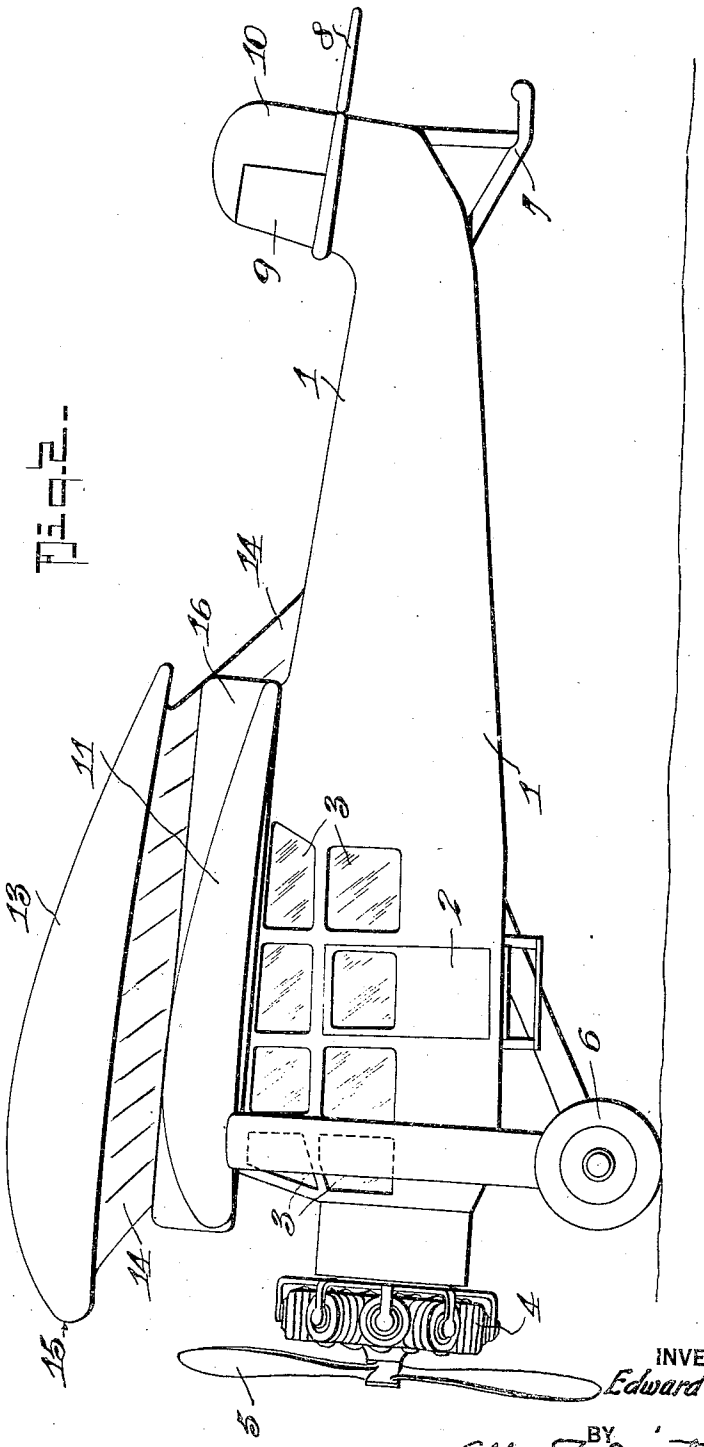


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AEROPLANE

Filed Sept. 20, 1930 4 Sheets-Sheet 2



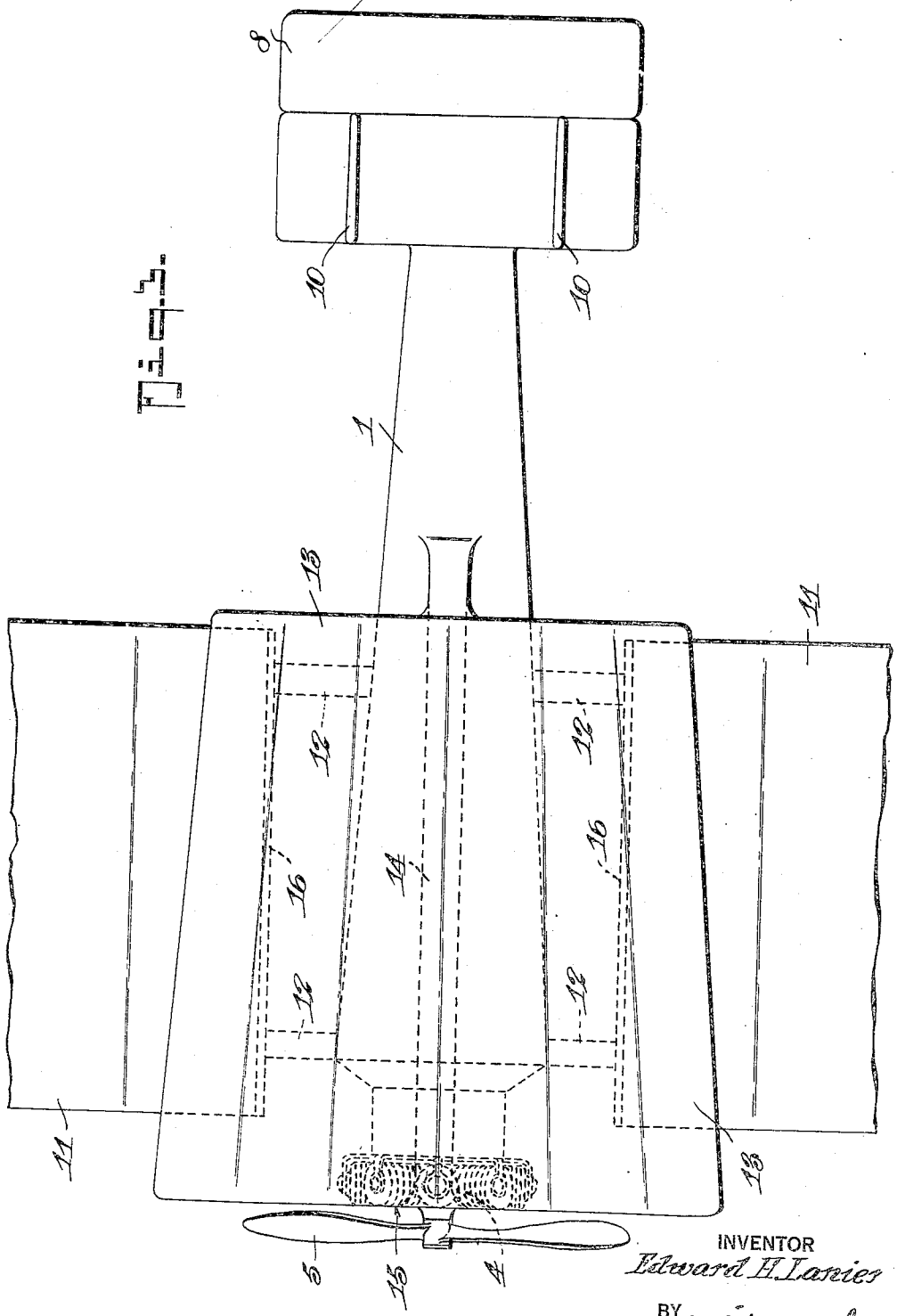
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AEROPLANE

Filed Sept. 20, 1930 4 Sheets-Sheet 3

Fig. 3.



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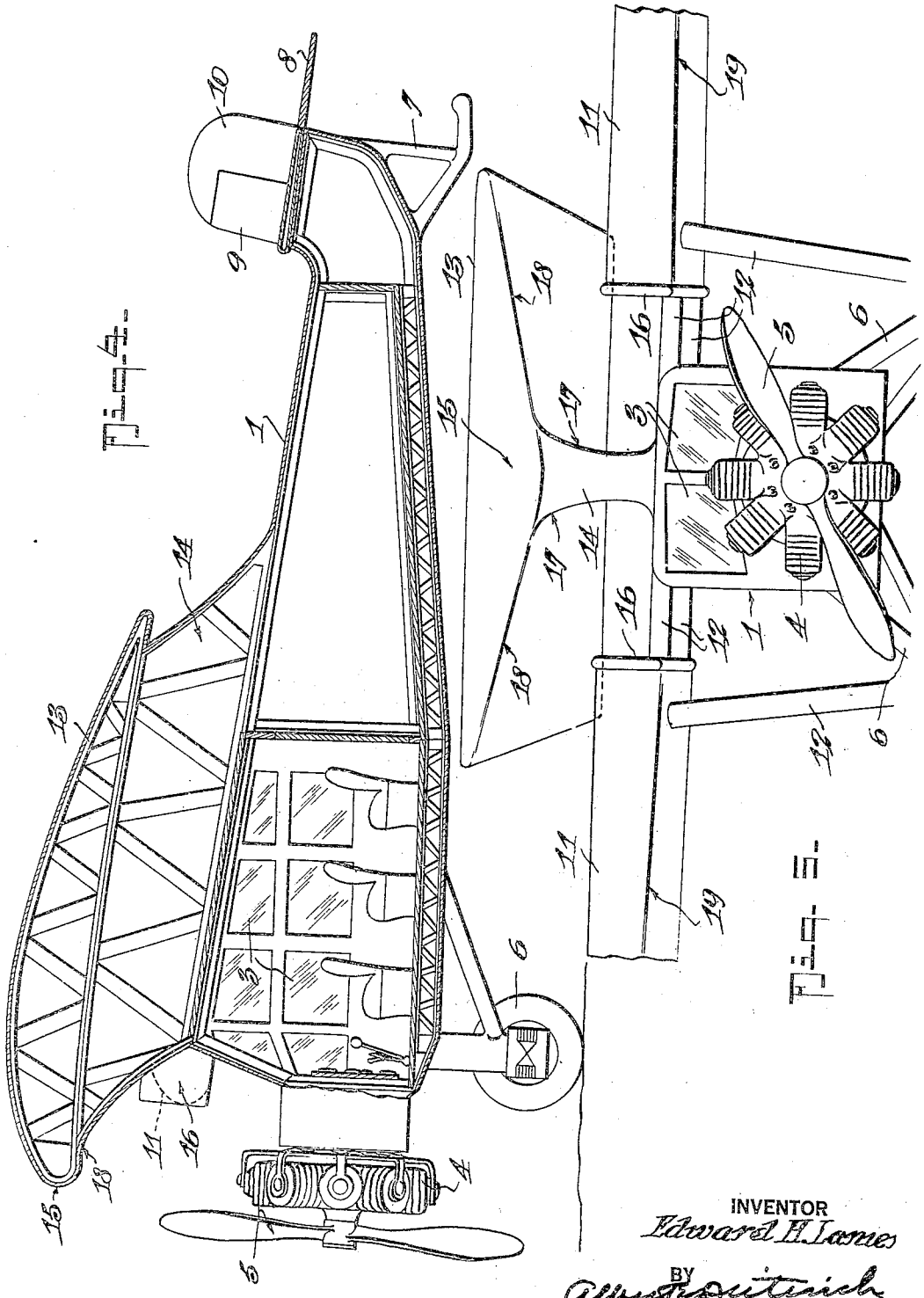


Fig. 4.

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AEROPLANE

Application filed September 20, 1930. Serial No. 483,299.

My invention relates to the art of aerial navigation and it particularly has to do with the heavier-than-air type of craft.

The primary object of the invention is to produce great lateral and longitudinal stability in a plane by its own fixed construction, thus preventing side slips, spins or nose dives, but should these, perchance, happen the plane will right itself into a vol-plane slowly descending to earth.

Other objects will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends, the invention still further resides in the novel details of construction, combination and arrangement of parts, all of which will be first fully described in the following detailed description, then be particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view of an aeroplane embodying my invention.

Figure 2 is a side elevation of the same.

Figure 3 is a plan view of the same.

Figure 4 is a vertical cross section on the line 4—4 of Figure 3.

Figure 5 is a front elevation of the invention.

In the drawings in which like numerals of reference indicate like parts in all of the figures, 1 represents the fuselage which may be of any approved construction, and it contains in its fore part the cabin for the passengers and crew, suitable doors 2 being provided for ingress and egress and suitable windows 3 being provided for vision.

An engine 4 is mounted on the nose of the fuselage and to its shaft is attached the usual propeller 5. 6 designates the front landing gear, 7 the tail skid, 8 the elevators, 9 the vertical fins and 10 the lateral steering rudders.

All of the aforesaid parts may be of any approved design and construction.

Extending laterally above the fuselage are the side wings 11, the inner ends of which are spaced apart and from the fuselage to leave vertical air channels between the ends of the wings and the fuselage, the ends of the wings providing vertical side walls 16. The wings are mounted on the fuselage by suitable cross beams and bracing 12 of any approved construction.

Running longitudinally above the fuselage and extending between it and a top wing 13 is a partition 14, the side walls of which curve laterally upwardly as at 17 and merge with the bottom surfaces 18 of the top wing 13, the bottom surfaces 18 extending upwardly and outwardly from the center toward the sides of the wing, thereby defining a dihedral angle.

The front edge of the top wing is straight across at its top and curves downwardly and inwardly as at 15, thus providing for the front edge of the top wing to overhang the front edges of the side walls and also to overhang the motor. The wings 11 also have their leading edge straight across the top, and their under surfaces incline upwardly and outwardly as at 19.

The top wing is designed with a high lift factor and of thick camber in the middle. Across the top of the wing the line is straight from tip to tip with a pronounced dihedral form on the under side, being thickest in the center and tapering upwardly to the wing tips. Also in plan view the top wing preferably has its side edges converging rearwardly as shown best in Figure 3.

It will be observed that the partition 14 runs longitudinally along the center of the fuselage midway between the adjacent ends of the side wings 11 and along the center of the top wing 13. This provides two channels, one at each side of the fuselage, and prevents the air from one channel crossing the fuselage laterally, the partition separating the air in the air channels and producing pressure on the sides of the partition and the dihedral under sides of the top wing to insure lateral stability especially when aided with the low center of gravity and the upward pull of the high lift wing.

By extending the nose of the top wing over the engine great leverage to lift the plane out of a nose dive into a vol-plane is obtained.

The front end of the partition 14 is rounded to offer as little head resistance as possible.

It will also be noted from Figure 3 that the side wings along the chord are widest at their inner ends and narrowing toward the wing tips. The purpose of this is to produce the greatest lift near the center of gravity. By tapering the top wing from the front edge toward the back edge as shown in Figure 3 a greater lift of that wing is obtained forward and the lift is reduced at the rear end so as not to effect the tail of the plane.

From the foregoing it will be seen that while planes with a top wing will not ordinarily produce good results, yet by providing the partition between the adjacent ends of the side wings it becomes possible for the top wing effectively to function when the plane over-balances laterally. This combination of the side and top wings with the center partition and air channels produces almost positive lateral stability.

From the foregoing description, taken in connection with the accompanying drawings, it is thought the complete construction, operation and advantages of my invention will be clear to those skilled in the art to which it relates.

What I claim is:

1. In an aeroplane, a fuselage, a pair of side wings extending laterally thereof and having their inner edges spaced apart from the fuselage, a central longitudinal partition in the space between the inner edges of said side wings, and a top wing overlying the space between said side wings and itself spaced from the side wings, the under side of said top wing merging with said partition.

2. In an aeroplane, a fuselage, a pair of side wings extending laterally thereof and having their inner edges spaced apart from the fuselage, a central longitudinal partition in the space between the inner edges of said side wings, and a top wing overlying the space between said side wings and itself spaced from the side wings, the under side of said top wing extending upwardly and laterally from said partition thereby defining a dihedral angle.

3. In an aeroplane, a fuselage, a pair of side wings extending laterally thereof and having their inner edges spaced apart from the fuselage, a central longitudinal partition in the space between the inner edges of said side wings, and a top wing overlying the space between said side wings and itself spaced from the side wings, the under side of said top wing extending upwardly and laterally from said partition thereby defining a dihedral angle, the leading edge of said top wing overhanging the leading edges of said side wings.

4. In aeroplanes, a fuselage, a pair of side wings located above and at the sides of the fuselage, cross beams mounting said wings on the fuselage, there being a space between the inner edges of said wings and the fuselage, a top wing overlying the space between said side wings, a longitudinal partition between the fuselage and the top wing and dividing said space into two air channels.

5. In aeroplanes, a fuselage, a pair of side wings located above and at the sides of the fuselage, cross beams mounting said wings on the fuselage, there being a space between the inner edges of said wings and the fuselage, a top wing overlying the space between said side wings, a longitudinal partition between the fuselage and the top wing and dividing said space into two air channels, said top wing overhanging said side wings at the front.

6. In aeroplanes, a fuselage, a pair of side wings located above and at the sides of the fuselage, cross beams mounting said wings on the fuselage, there being a space between the inner edges of said wings and the fuselage, a top wing overlying the space tween said side wings, a longitudinal partition between the fuselage and the top wing and dividing said space into two air channels, said top wing having its under surfaces inclined upwardly and laterally away from said partition, thereby defining a dihedral angle.

7. In aeroplanes, a fuselage, a pair of side wings located above and at the sides of the fuselage, cross beams mounting said wings on the fuselage, there being a space between the inner edges of said wings and the fuselage, a top wing overlying the space between said side wings, a longitudinal partition between the fuselage and the top wing and dividing said space into two air channels, said top wing overhanging said fuselage, a motor on the fuselage beneath the overhanging portion of said top wing, and a propeller in front of said motor and wings.

8. In aeroplanes wherein is provided a fuselage including a cabin portion at the front, a motor and propeller mounted at the front of the fuselage, a pair of side wings located above and spaced apart from the fuselage, a longitudinal partition over the fuselage in the space between the side wings, and a top wing on said partition extending laterally over the inner ends of said side wings.

9. In aeroplanes, wherein is provided a fuselage including a cabin portion at the front, a motor and propeller mounted at the front of the fuselage, a pair of side wings located above and spaced apart from the fuselage, a longitudinal partition over the fuselage in the space between the side wings, and a top wing on said partition extending

laterally over the inner ends of said side wings, the side walls of said partition diverging upwardly and laterally and merging with the under side of said top wing.

10. In aeroplanes wherein is provided a fuselage including a cabin portion at the front, a motor and propeller mounted at the front of the fuselage, a pair of side wings located above and spaced apart from the fuselage, a longitudinal partition over the fuselage in the space between the side wings, and a top wing on said partition extending laterally over the inner ends of said side wings, the side walls of said partition diverging upwardly and laterally and merging with the under side of said top wing, said top wing having a high lift factor and being of thick camber in the middle.

11. In aeroplanes wherein is provided a fuselage including a cabin portion at the front, a motor and propeller mounted at the front of the fuselage, a pair of side wings located above and spaced apart from the fuselage, a longitudinal partition over the fuselage in the space between the side wings, and a top wing on said partition extending laterally over the inner ends of said side wings, the side walls of said partition diverging upwardly and laterally and merging with the under side of said top wing, said top wing having a high lift factor and being of a thick camber in the middle, said top wing also overhanging said motor.

12. In aeroplanes wherein is provided a fuselage including a cabin portion at the front, a motor and propeller mounted at the front of the fuselage, a pair of side wings located above and spaced apart from the fuselage, a longitudinal partition over the fuselage in the space between the side wings, and a top wing on said partition extending laterally over the inner ends of said side wings, said top wing overhanging said side wings fore and aft.

13. In aeroplanes wherein is provided a fuselage including a cabin portion at the front, a motor and propeller mounted at the front of the fuselage, a pair of side wings located above and spaced apart from the fuselage, a longitudinal partition over the fuselage in the space between the side wings, and a top wing on said partition extending laterally over the inner ends of said side wings, said top wing overhanging said side wings fore and aft, and in plan having its outer side edges converging rearwardly.

14. In aeroplanes wherein is provided a fuselage including a cabin portion at the front, a motor and propeller mounted at the front of the fuselage, a pair of side wings located above and spaced apart from the fuselage, a longitudinal partition over the fuselage in the space between the side wings, and a top wing on said partition extending laterally over the inner ends of said side wings, the side walls of said partition diverging upwardly and laterally and merging with the under side of said top wing, said top wing having a high lift factor and being of thick camber in the middle, and in plan having its outer side edges converging rearwardly.

EDWARD H. LANIER.