

W. KRIEDTER & W. H. BOURDON.
 WING FOR FLYING MACHINES.
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993,842.

Patented May 30, 1911.

Fig. 1.

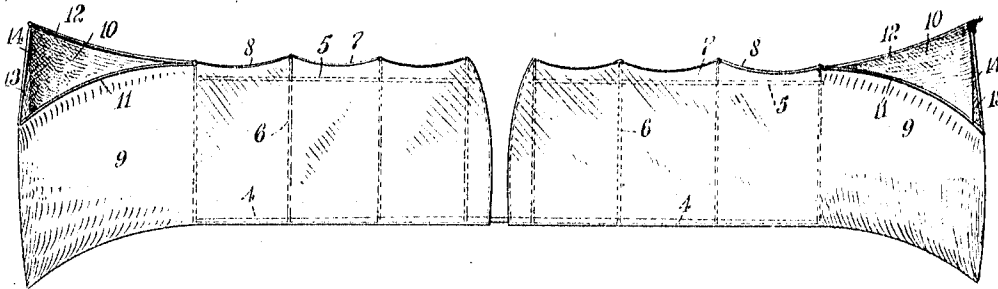


Fig. 2.

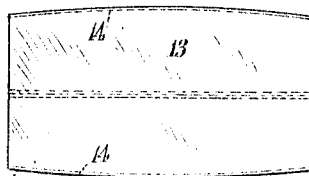
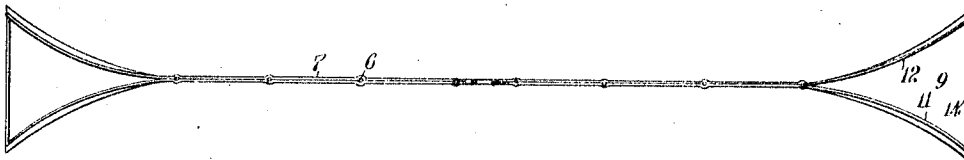


Fig. 3.

WITNESSES:

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WILLIAM KRIEDTER AND WILLIAM HENRY BOURDON, OF NEW YORK, N. Y.

WING FOR FLYING-MACHINES.

993,842.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed February 23, 1910. Serial No. 545,281.

To all whom it may concern:

Be it known that we, WILLIAM KRIEDTER and WILLIAM H. BOURDON, both citizens of the United States, and residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Wing for Flying-Machines, of which the following is a full, clear, and exact description.

Our invention relates to flying machines, our more particular purpose being to provide an improved wing or analogous member for use in connection with the same.

We have made the discovery that if, in almost any type of flying machine, where a wing is used, the outer end of the wing be provided with a box, made for instance after the manner of a box kite, the stability of the wing and of all mechanism controllable by it is greatly increased. We have also made the discovery that if a wing be built with a box at its outer end, a comparatively small wing surface will answer for a given breadth and length of wing, and a greater power is attained for the purpose of steering, floating, steadying, or otherwise controlling the craft to which the wing relates.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective showing a pair of wings made in accordance with our invention and containing boxes at the tip or outer ends of the wings; Fig. 2 is a rear elevation of the pair of wings shown in Fig. 1; and Fig. 3 is a side elevation showing more particularly the box at the tip of the wing.

At 4, 5 are frame pieces having more or less analogy to the main bones in the wing of a bird, and at 6 are frame pieces crossing the general direction of the frame pieces 4, 5.

At 7 is a web which, in this instance, is of double thickness. This web is provided with scalloped edges 8, as shown in Fig. 1. The web is further provided with portions 9, 10 which diverge from each other by a slight but gradual curve, as indicated in Fig. 2.

At 13 is a cross web which extends from one outer portion 9 to the opposite outer portion 10, the web 13 being practically the tip of the wing.

At 11, 12 are spring ribs which are firmly connected with the frame pieces 4, 5, and

with the outermost frame piece 6. Two ribs 14 are connected with the ribs 11, 12.

The operation of our device is as follows:

When the wing is mounted on a flying machine and this machine is driven against the air, the portions 9, 10, 13 of webbing act together as a box, or in other words, the outer or tip end of the wing acts as if it were under control of a box kite. The stability of the wing is thus increased very greatly. Moreover, other things being equal, the supporting power of the wing—that is, its power to make the machine float when used as an aeroplane—is increased to such extent that a smaller wing, if built in accordance with our invention, may take the place of a larger wing of ordinary construction. It will be noted that all three portions 9, 10, 13 of the webbing are substantially parallel with the general direction of the frame pieces 6, and therefore are parallel with the general direction in which the flying machine travels. If, now, a disturbing air current tends to upset the machine, and blows, we will say, against the box at some peculiar and undesirable angle, this disturbing gust of air can not readily upset the machine for the reason that in order to do so it must disturb, to a considerable extent, all the web portions 9, 10, 13. That is to say, these three web portions are not acted upon in the same way by any given air current, and consequently they tend to retain their own stability and that of the machine, for the reason just stated, which appears to be that controlling the stability of the box kite. The two ribs 14 are connected with the ribs 11, 12 and extend directly across the wing, the ribs 14 being curved slightly as indicated in Fig. 3. We find that this slight curvature of the ribs 14 also increases the stability of the wing and that of the machine. The reason for this is probably due to the fact that by giving the ends of the wing a slight convexity as will be understood from Fig. 3, the ends of the box are not so apt to be unduly distended in case of a sudden gust of wind.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. In a wing for flying machines, the combination of a body portion and a tip, said tip comprising two web portions diverging from each other by a slight curve, and an-

other web portion extending across from one of said first-mentioned web portions to another.

2. In a wing, the combination of two web portions diverging from each other, a third web portion extending from one of said first-mentioned web portions to the other, and curved ribs engaging the diverging web portions for the purpose of rendering the same slightly convex in a fore and aft direction.

3. In a wing for flying machines, the combination of a body portion having a web and a tip mounted upon one edge of said web,

said tip comprising two web portions diverging from each other by a slight curve, and another web portion extending across from the outer end of one of said two web portions to the outer end of the other.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM KRIEDTER.

WILLIAM HENRY BOURDON.

Witnesses:

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RICHARD H. URLISKIE.