M. JASOGNE.

AEROPLANE.

APPLICATION FILED DEC. 24, 1910.

1,041,630.

Patented Oct. 15, 1912.

3 SHEETS—SHEET 1.

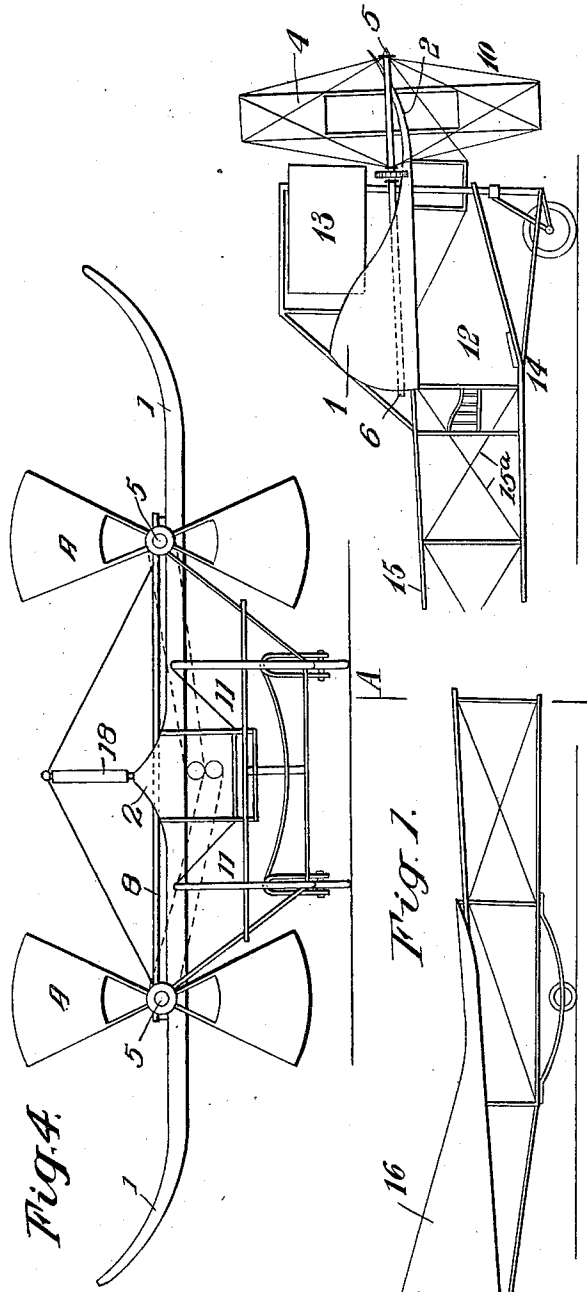

Fig. 4.

Fig. 1.

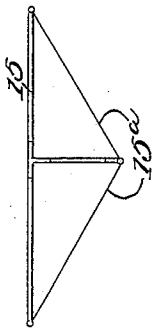

Fig. 3.

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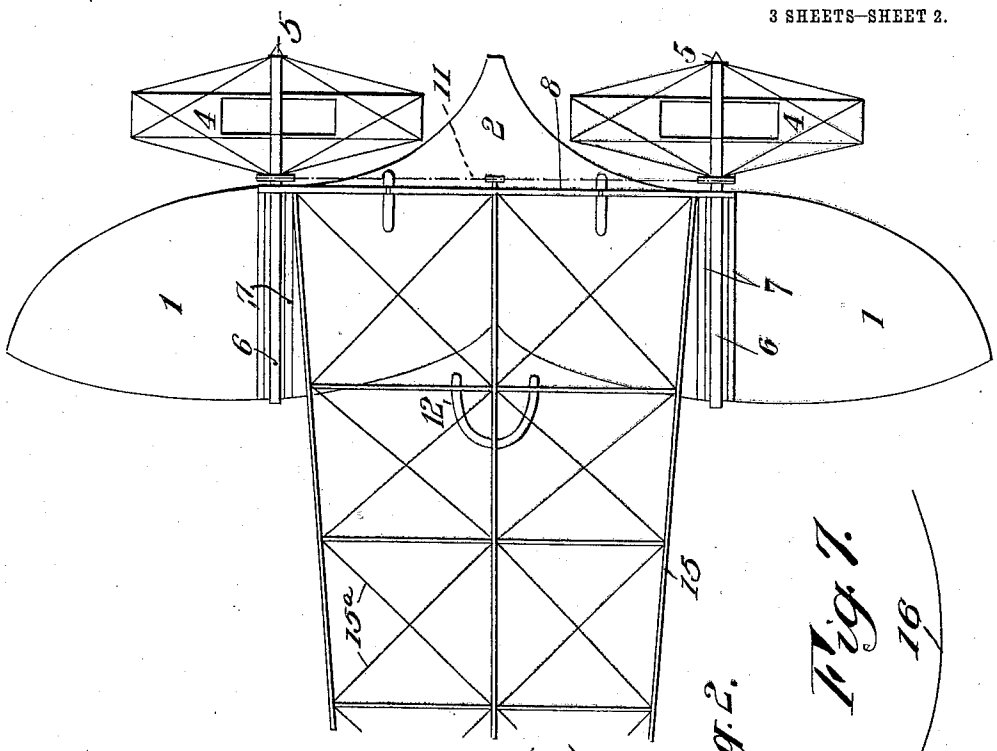

Fig. 2.

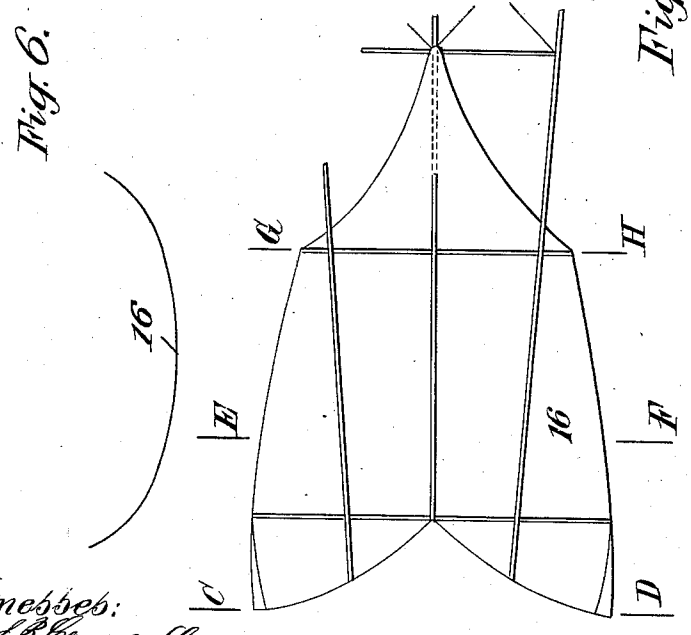

Fig. 6.

Fig. 7.

Fig. 5.

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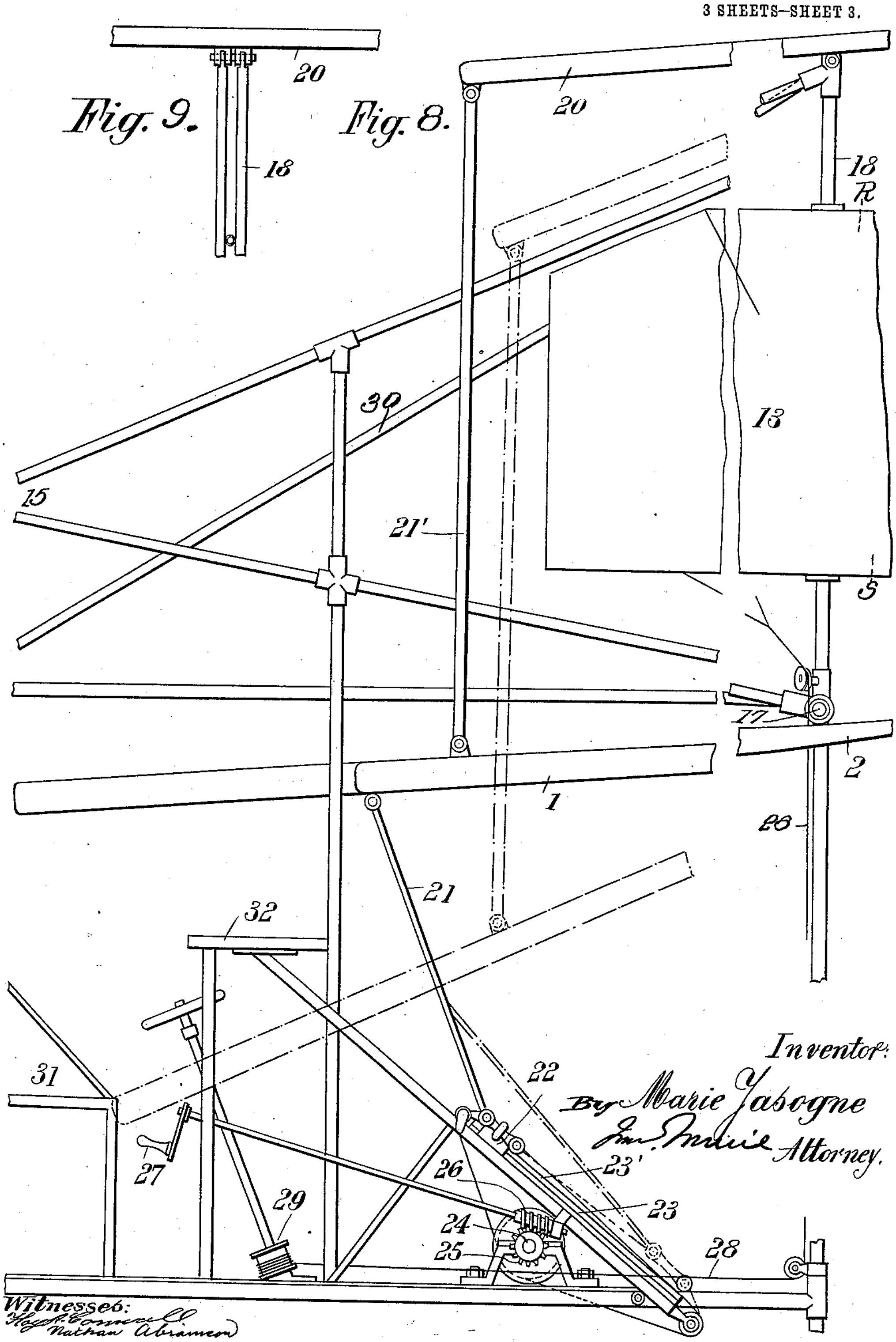
3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

MARIE JASOGNE, OF PARIS, FRANCE.

AEROPLANE.

1,041,630. Specification of Letters Patent. Patented Oct. 15, 1912.

Application filed December 24, 1910. Serial No. 599,069.

To all whom it may concern:

Be it known that I, MARIE JASOGNE, a citizen of the French Republic, and resident of Paris, France, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification.

This invention relates to improvements in aeroplanes which improvements have been combined in such a manner that great speed may be obtained owing to the shape of an arrow which has been given to the machine. Furthermore the curvatures of the supporting surfaces as well as those of the tail have been established in such a manner that they give the machine a very great stability so that as soon as the flying machine inclines and leaves its normal position, it will automatically come back into normal position.

In the accompanying drawings, Figure 1 is a side elevation of my improved aeroplane. Fig. 2 is a top plan view of the same. Fig. 3 shows a sectional view of the treillis body of the aeroplane on a line A—B of Fig. 1. Fig. 4 is a front elevation view of the machine. Figs. 5, 6 and 7 are transverse sectional views on the lines C B, E F and G H of Fig. 2. Fig. 8 is a side view of an embodiment of the invention hereinafter specifically described, and, Fig. 9 is a detail thereof.

The sustaining surface designated by 1—1 and 2, comprises two lateral wings 1—1 which are united so as to form a point 2 positioned at the front of the apparatus. Viewed from the top, the sustaining surface has the shape shown by Fig. 2; the ends of the wings 1—1 are laterally curved upward as shown by Figs. 1 and 4 and the point 2 is uniformly longitudinally curved upward as shown by Fig. 1 in such a manner that the convex side of the sustaining surface is facing downward. This arrangement is extremely important for securing the stability by reason of the fact that a moving body having a convex surface has always a tendency to direct the convexity of its surface into the direction of the resistance of the surrounding fluid. Therefore if the aeroplane inclines when descending, it will right itself again automatically.

The two screw propellers 4 are carried by shafts 5 which are extended at 6 between two longitudinal beams 7 on which the wings or sustaining surfaces 1—1 are mounted. A tube 8 secured to the framework of the machine unites the upper parts of the right and left hand longitudinal beams 7. The rotary motion is transmitted from the motor to the propeller shafts through the medium of a Gall's chain 11. The seat of the airman has been indicated at 12. The airman may give the desired inclination to the propellers and the sustaining surfaces by means of a system of cables and guide rollers (not shown). The steering rudder is designated 13 in Fig. 8 and may be easily controlled by the airman through the instrumentality of suitable intermediate members as hereinafter described in connection with Fig. 19.

The body 14 of the apparatus is mounted as usual on wheels for starting and landing purposes and is extended by a long body skeleton 15 which has a T like section. It is composed of parts made of bamboo and connected together by means of cables 15^a. At the rear end of the skeleton body is the tail 16 the curves of which are indicated by the sections C—D, E—F and G—H shown by Figs. 5, 6 and 7. As readily seen these curves the convex sides of which face downward, become more and more closed toward the rear end in such a manner that the air is compressed therein which still contributes to give the machine a great stability.

It results from the above specification: First. That the machine has a great stability by reason of the convexity of the ends of the sustaining surfaces 1—1—2 which convexity exists on three sides, on the two lateral sides and the front side.

Second. That the tail by reason of its particular shape due to its convexity which becomes greater toward the rear, gives a great stability to the machine because it produces a compression of the air.

The ensemble of these arrangements makes a machine the shape of which may be compared to that of an arrow whereby very great speeds may be obtained while at the same time a very great stability of the apparatus is secured.

The apparatus described above and considered under this form a monoplane com-

prises as explained a sustaining surface formed by two wings 1, 1 the ends of which as well as the central front point 2 are curved upward so as to form a convex surface which owing to its shape has always a tendency to direct the convexity of its surface in the direction of the resistance of the surrounding fluid. The varied parts at the front and on the sides are connected between each other by parts in the nature of screw or helical surfaces which aid to establish again automatically the equilibrium while running. The same remarks may be made as to the tail 16 which has besides the raised front and lateral edges, a curvature of said lateral edges which form between each other a directing channel in which the air is compressed whereby the longitudinal and lateral stability of the apparatus is secured.

Longitudinal stability.—If the inclination of the aeroplane is modified by reason of any outer cause, theory and experience prove that the special shape of the surface of the wings and of the tail, which has a progressive convex curvature, produces a progressive compression of the inner layer of air and a progressive expansion of the outer layer of air whereby a perfect longitudinal stability of the apparatus is secured.

Lateral stability.—If the aeroplane for instance inclines toward the right under the influence of any outer cause, it is clearly seen that when the curve C—D (Fig. 5) is caused to rotate clockwise, that the useful fraction of the half of this curve C—D that is to say that which receives the sustaining action from the outer air, increases while the useful fraction of the left half is reduced, furthermore, the mean inclination of the right half approaches the horizontal line, while that of the left half approaches the vertical line; to this differential reaction of the outer air is added a differential action of the inner air; from which results a righting couple of forces which gives the aeroplane a perfect lateral stability. The special progressive curved form of the wings and of the tail thus procures a great longitudinal and lateral stability and consequently a perfect stability underway.

The sustaining surface 1—2 is connected by means of a tractional member or link 21, with a sliding block 22 adapted to slide on a guide way 23 which is obliquely mounted in a suitable position on the skeleton elongated body of the apparatus. This sliding block 22 is connected at each end with the corresponding ends of a cable 23′ which is wound on a drum 24. The latter is integral with a worm wheel 25 which meshes with a worm 26 the shaft of which carries an actuating crank 27 which is positioned so as to be easily reached by the airman.

According to the direction in which the airman will rotate the crank 27, the sliding block 23 will be moved forward and downward or upward and rearward and consequently will more or less incline the sustaining surfaces.

The actuation of the steering rudder 13 is effected by means of an endless cable 28 passing over a drum 29 the shaft of which carries a hand wheel which is also positioned near the airman.

In that embodiment of the invention illustrated in Fig. 8, the king posts 18 have pivotally secured to them, an upper or auxiliary sustaining surface 20 which is pivotally connected by a link 21′ to the sustaining surface 1. In this view, 31 designates a seat and 32 designates a small table designed to receive instruments necessary under way, such as compass, charts or similar instruments.

Having now fully described my said invention, what I claim and desire to secure by Letters Patent, is:

1. In an aeroplane the combination with the body of sustaining surfaces adapted to oscillate around their extreme front edge, a sliding block adapted to move on an inclined guideway, a drum a cable wound on said drum and connected at its ends with the ends of said sliding block, tractional members connecting the said sliding block with said sustaining surfaces, a worm adapted to actuate said drum and a handle adapted to actuate said worm substantially as and for the purpose set forth.

2. In an aeroplane, the combination with the body of the machine, of a movable sustaining surface, an inclined guideway, a sliding block adapted to move in said guideway, a drum, a cable wound on said drum and connected on its ends with the ends of said sliding block, a connection between the block and the sustaining surfaces, and means for actuating the drum.

3. In an aeroplane, the combination with the body, of upper and lower sustaining surfaces connected together for simultaneous and corresponding movement, a guideway, a sliding block adapted to move on said guideway, a drum, a cable wound on said drum and connected on its ends with the ends of said sliding block, a connection between the sliding block and one of the sustaining surfaces, and means for guiding said block.

4. In an aeroplane, the combination with the body of the machine, of a sustaining surface, a guideway, a sliding block adapted to move on said guideway and operatively connected to the sustaining surface, a drum, a cable wound on said drum and connected to said block, a worm adapted to actuate said drum, and a handle adapted to actuate said worm, substantially as and for the purpose set forth.

5. In an aeroplane, a body portion formed with laterally projecting wings

which are laterally curved with convex surfaces facing downward, the machine being formed at the middle of said wing with a forwardly projecting and longitudinally and upwardly curving sustaining surface, and a tail secured to the rear of the body portion, the tail being laterally curved and the convex sides of which face downward, becoming more and more close toward the rear end, for the purpose specified.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

MARIE JASOGNE.

Witnesses:
THEODOR DOBSON,
H. C. COXE.