J. C. VAN ETTEN.

TOY AEROPLANE.

APPLICATION FILED MAY 24, 1920.

1,421,621.

Patented July 4, 1922.

2 SHEETS—SHEET 1.

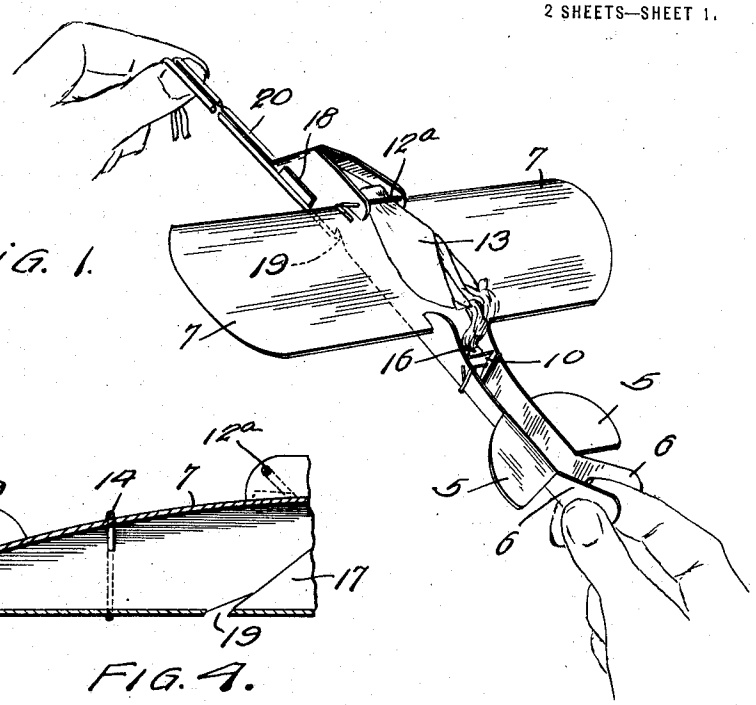


FIG. 1.

FIG. 4.

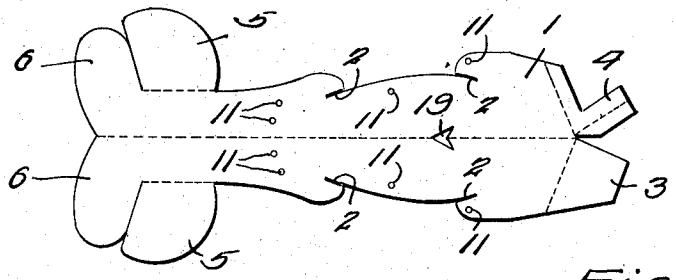


FIG. 2.

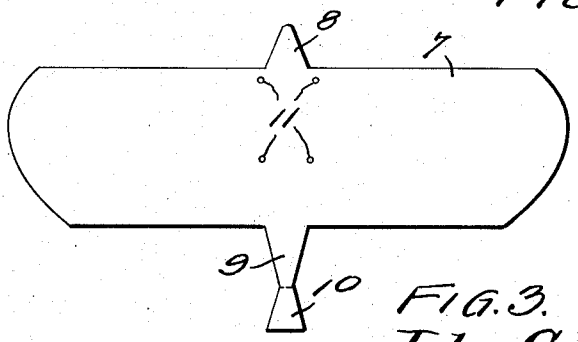


FIG. 3.

Witness

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2 SHEETS—SHEET 2.

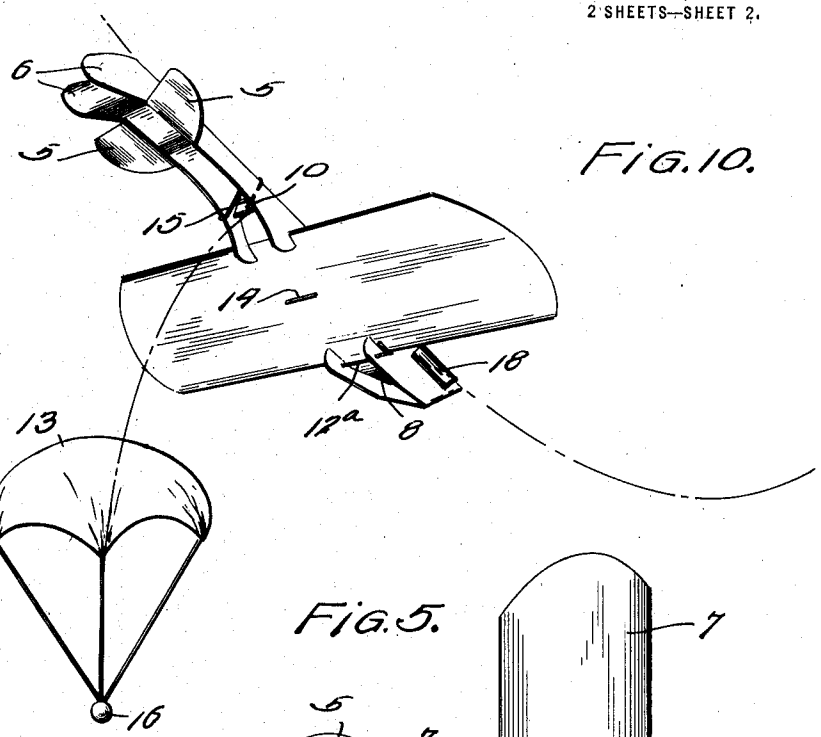


FIG. 10.

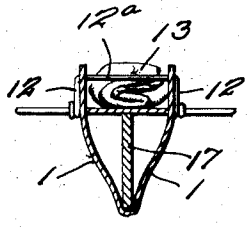


FIG. 6.

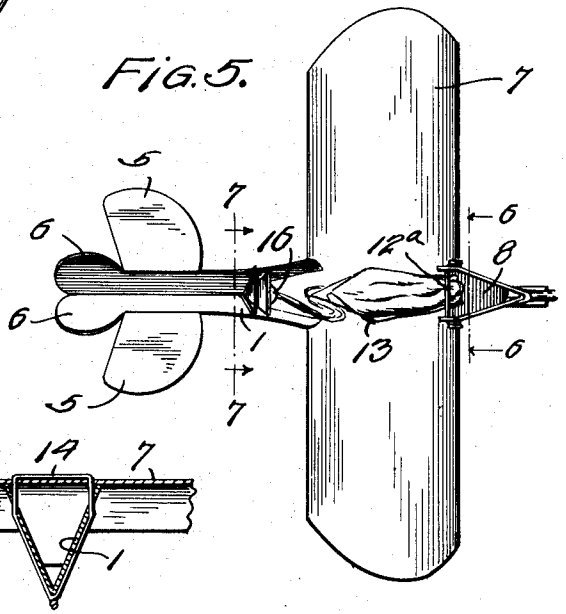


FIG. 5.

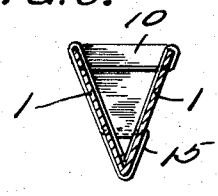
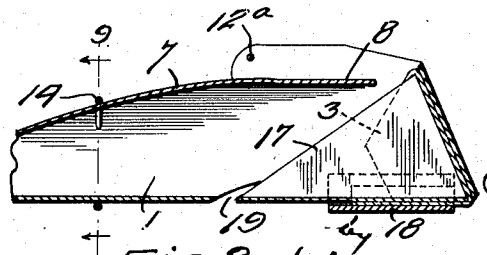


FIG. 7.

FIG. 9.



9 FIG. 8

Witness

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UNITED STATES PATENT OFFICE.

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TOY AEROPLANE.

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Application filed May 24, 1920. Serial No. 383,717.

To all whom it may concern:

Be it known that I, JOHN C. VAN ETTEN, a citizen of the United States of America, and a resident of Portland, Oregon, have invented new and useful Improvements in Toy Aeroplanes, which invention is fully set forth in the following specification.

This invention relates to toy aeroplanes and has for its object to provide a structure of this class which can be sold in a knock-down condition, readily assembled by unskilled persons, and which will "loop the loop" in its flight, the whole being combined with a parachute carried by the aeroplane and freed therefrom when the latter is in the act of looping the loop.

With these objects in view, the invention consists of the combination and arrangement of elements hereinafter more specifically described and then defined in the claims.

Referring to the drawings forming a part of this specification, and which are designed to illustrate one form in which the invention may be embodied—

Fig. 1 is a perspective view of the aeroplane in the act of being launched;

Fig. 2 is a plan view of a blank for forming the fuselage of the aeroplane;

Fig. 3 is a plan view of a blank of the wings or supporting surfaces of the plane, said blank being struck from light card-board or heavy paper;

Fig. 4 is a detail longitudinal section through the aeroplane, the front and rear portions being broken away;

Fig. 5 is a plan view of the plane, with the parts assembled and the parachute shown in position;

Fig. 6 is a transverse section on the line 6—6 of Fig. 5, looking in the direction of the arrows;

Fig. 7 is a transverse vertical section on the line 7—7 of Fig. 5, looking in the direction of the arrows;

Fig. 8 is a central vertical detail section of the front part of the fuselage showing the method of folding the blank and attaching a weight thereto;

Fig. 9 is a vertical transverse section on the line 9—9 of Fig. 8, looking in the direction of the arrows; and

Fig. 10 is a perspective inverted view of the aeroplane in the act of looping the loop and dropping the parachute therefrom.

In said drawings, 1 is a fuselage of any suitable material, preferably of light card-board or stiff paper, and of the form shown in Fig. 4, provided with four undercuts or kerfs 2 for receiving the wing portion of the plane in the act of assembling, as will be hereinafter described. On the forward portion of the blank are provided extensions 3 and 4, shaped as shown in Fig. 2, which extensions are designed to be folded over to form the bow of the fuselage and sufficiently stiffen the same. The rear portion of the fuselage is provided with tail formations, two of which, 5—5, are designed to be opened out into approximately horizontal position when the parts are assembled, while the two parts 6—6 are designed to be positioned more nearly upright, said parts 5 and 6 serving to steady and control the aeroplane in its flight.

Referring to Fig. 3, 7 is a blank also made of any suitable material as card-board or stiff paper, the general outline of which, as shown in the drawings, is that of an ordinary aeroplane supporting surface, the same being provided, however, at its forward central part with a wedge-shaped forwardly projecting portion 8 and at its central rear edge with a rearwardly projecting wedge-shaped portion 9 which terminates in an additional projection 10 of a reversed wedge-shaped form; that is to say, the part 9 is designed to taper in a narrowing manner toward the rear, while the part 10, from the point where it joins the part 9, tapers in a widening direction toward the rear. Each of the blanks 1 and 7 is provided with suitable perforations 11 through which suitable stay wires or other fastening devices are passed in assembling the parts.

In such assemblage, the fuselage blank 1 is bent along its central longitudinal line into approximate V-shape as will be understood from an inspection of Figs. 1, 5 and 7, and while it is thus bent, the blank 7 is placed above the same with the wedge-shaped portion 8 thereof extending forward into the V-shaped portion of the fuselage, and the front edge of the plane 7 is inserted under the forward cuts or kerfs 2 of the fuselage, while the rearward edge portion thereof is inserted under the rear kerfs 2—2 thereof, with the tail piece 9 lying within the V-shaped portion of the fuselage and the wedge-shaped portion 10 thereof bent upward as clearly shown in Fig. 1. With

the parts in this position, a stay wire 12 is passed through the openings 11 in the forward part of the fuselage and the forward part of the wing 7 and bent so as to firmly draw the sides of the forward end of the fuselage tightly against the wedge-shaped portion 8, said wire being extended across the top of the fuselage from one side to the other thereof, as shown at 12^a, Fig. 1. to form a means for retaining the forward end of the parachute 13 in position (see Fig. 6), as will be hereinafter described. In like manner, stay wires 14 and 15, Fig. 4, are passed through the openings 11 in the blanks of the fuselage and wing portion, and the sides of the fuselage drawn up closely against the sides of the tail portion 9, the portion 10 thereof being bent upward as shown in Fig. 4 and the stay wire drawn tightly and bent to hold the parts firmly in position. Preferably, the part 10 is slightly inclined forward as shown in Fig. 4 to form a pocket for the reception of the weight 16, Fig. 10, attached to the parachute.

Referring to Fig. 9, 17 is a piece of triangular-shaped card-board, paper, fiber or other stiff material, which is placed in the bow or front end of the fuselage, and the parts 3 and 4 folded over the forward end thereof along the dotted lines, shown in Fig. 4, in the manner illustrated in Fig. 9, the whole being retained in its folded position by a weight 18 of lead or other ductile metal which can be folded into position, thus serving the double purpose of weighting the forward end of the aeroplane and of clamping the portions of the bow in their folded position. On the under side of the fuselage and just to the rear of the reinforced member 17, a V-shaped notch 19 is cut into the material of the fuselage to afford the means for engagement of the rubber loop 20, (Fig. 1) employed for propelling the device. Parachute 13 being properly folded, its forward end is tucked lightly under the wire loop 12^a and the weight 16 rests in the pocket formed in the fuselage just to the front of the upwardly projecting tail piece 10.

With the parts thus assembled, the rubber loop 20 is engaged in the notch 19, the rear end of the plane is grasped in the hands, preferably by tail pieces 6—6, and the structure projected into the air preferably at an upward angle of about 45°, in much the same way that a dart is fired. With the parts properly assembled and with a suitable projecting rubber loop, the plane will ascend high into the air and will then completely loop the loop. As it is in the act of turning over to assume the position shown in Fig. 10, the weight 16 of the parachute drops out of the pocket and withdraws the parachute from under the wire loop 12^a. The plane proceeds to complete the loop and glides gracefully to the ground, the parachute opening and descendingly slowly as illustrated in Fig. 10.

From the foregoing, it will be seen that I have provided an exceedingly simple construction, composed of few parts, strong, easily assembled by an unskilled person, and capable of affording great amusement to children and, in fact, to adults. With the parts properly assembled and the plane properly launched, it will invariably loop the loop in the manner described and launch the parachute, it of course being understood that so light a structure should not be launched in a high breeze.

Having thus described my invention, what is claimed is:—

1. In a toy aeroplane, the combination of a fuselage, a wing or supporting surface secured thereto and provided with a part extending between the walls of the fuselage, said part having a portion thereof bent upwardly to provide a pocket, and a weighted parachute releasably secured on said wing or supporting surface, the parachute weight being supported in said pocket.

2. In a toy aeroplane, the combination of a fuselage, a wing or supporting surface at the forward portion of the fuselage and provided with a rearwardly projecting part extending between the walls of the fuselage, said part having its terminal portion bent upwardly to provide a pocket, means for securing the wing or supporting surface to the fuselage in the position named, and a parachute releasably secured on said supporting surface by said means, the parachute weight being supported in said pocket.

3. In a toy aeroplane, the combination of a fuselage V-shaped in cross section and having kerfs or notches cut in the sides thereof, with a wing or supporting surface having its front and rear edges engaged in the kerfs or notches of the fuselage, and tie wires extending through said fuselage and the wing or supporting surface for securing the parts together.

4. In a toy aeroplane, the combination of a fuselage V-shaped in cross section, with a wing or supporting surface provided with a wedge-shaped forwardly projecting part extending between the walls of the fuselage, and means holding the walls of the fuselage against said wedge-shaped part.

5. In a toy aeroplane, the combination of a fuselage V-shaped in cross section, with a wing or supporting surface provided with a rearwardly projecting part extending between the walls of the fuselage, and a tie wire extending through the fuselage over the rearwardly projecting part for holding the walls of the fuselage against said part.

6. In a toy aeroplane, the combination of a fuselage V-shaped in cross section, with a wing or supporting surface having a rearwardly projecting part extending between

the walls of the fuselage and having its terminal part bent upwardly, and means securing the parts in the position named.

7. In a toy aeroplane, the combination of a wing or supporting surface and a fuselage secured thereto, said fuselage being formed of a paper blank folded longitudinally with a V-shaped cross section and having extensions on the fuselage blank folded over to form the bow.

8. In a toy aeroplane, a fuselage formed of a paper blank folded along its central longitudinal line, a stiffening member in the bow over which the end of the blank is folded, and a piece of ductile metal clamping said folded portions to hold them in position and to weight the bow end of the fuselage.

9. In a toy aeroplane, the combination of a paper fuselage V-shaped in cross-section, with a paper wing or supporting surface, means securing the wing to the fuselage comprising retaining wires extending through said parts, and a weight secured to the under side of the bow of said fuselage.

10. In a toy aeroplane, the combination of a fuselage V-shaped in cross-section and having kerfs or notches cut in the sides thereof, a wing or supporting surface provided with front and rear portions extending between the walls of the fuselage, the front and rear edges of the wing engaging in the kerfs or notches of said fuselage, and tie wires extending through the wing and fuselage for holding the walls of the latter against the front and rear extending portions of said wing or supporting surface.

In testimony whereof I have signed this specification.

JOHN C. VAN ETTEN.