Sept. 5, 1933. A. C. WURTZER 1,925,427

TOY AEROPLANE

Filed Feb. 15, 1932 2 Sheets-Sheet 1

Fig. 1.

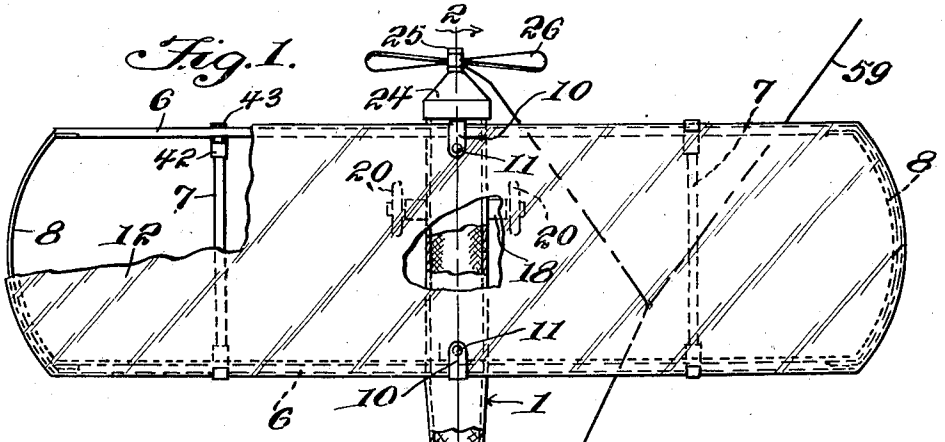


Fig. 6.



Fig. 7.

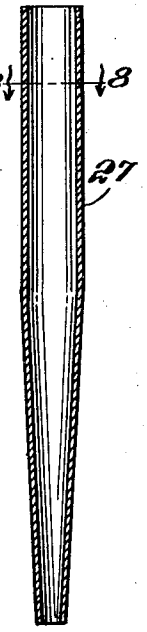


Fig. 8.

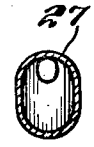


Fig. 2.

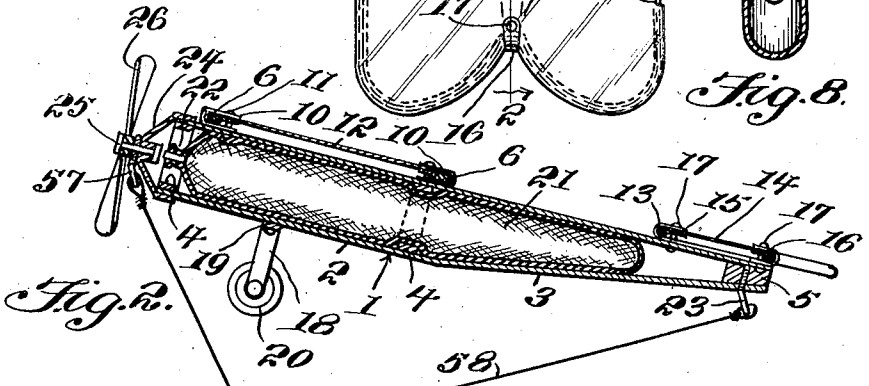


Fig. 5.

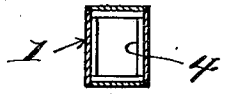
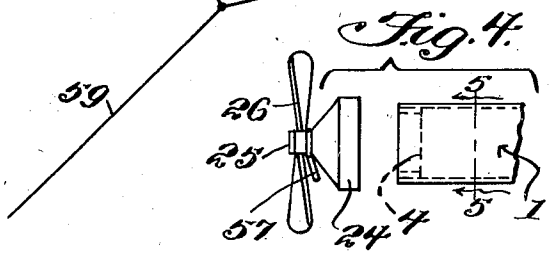


Fig. 4.



Inventor
August C. Wurtzer,
By Thurston & Howe
Attorney

Sept. 5, 1933. A. C. WURTZER 1,925,427

TOY AEROPLANE

Filed Feb. 15, 1932 2 Sheets-Sheet 2

Fig. 3.

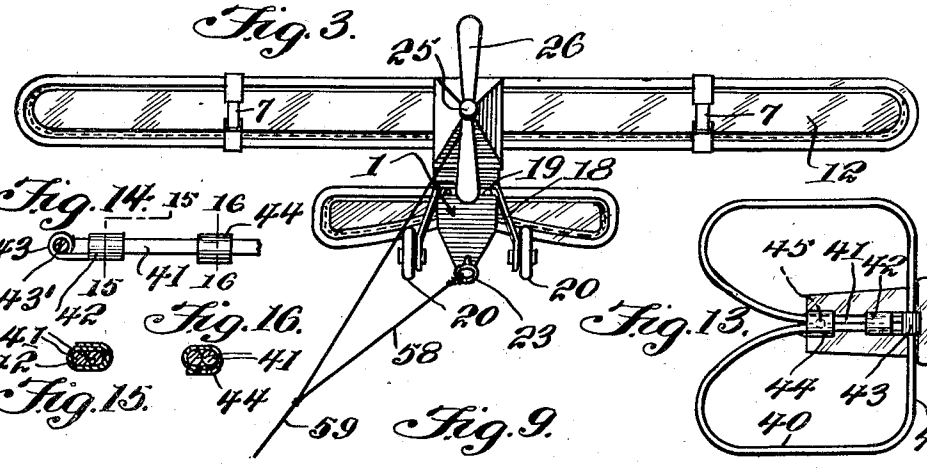


Fig. 14.

Fig. 16.

Fig. 15.

Fig. 9.

Fig. 13.

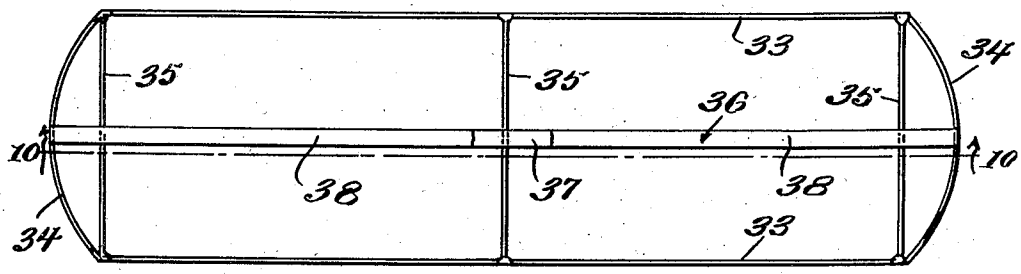


Fig. 10.

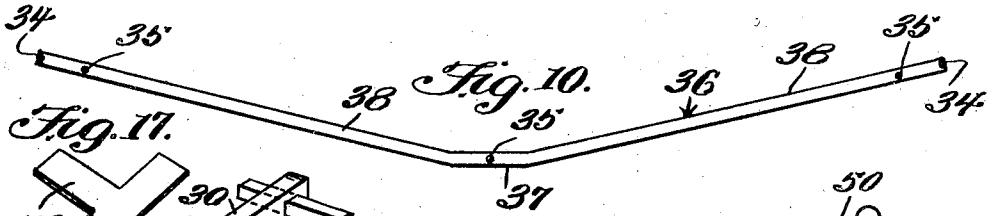


Fig. 17.

Fig. 18.

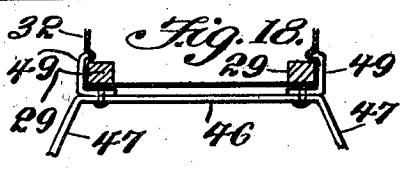


Fig. 11.

Inventor-

August C. Wurtzer,

By Rumely & Jones

Attorney

Patented Sept. 5, 1933 1,925,427

UNITED STATES PATENT OFFICE

1,925,427

TOY AEROPLANE

August C. Wurtzer, Catonsville, Md.

Application February 15, 1932. Serial No. 593,151

5 Claims. (Cl. 46—50)

This invention is directed to an improvement in toy aeroplanes designed particularly with a view to providing the use of such as a kite, with the toy simulating all parts of an aeroplane so that when flown as a kite it has every appearance of an aeroplane at a considerable height.

The primary object of the present invention is the provision of a toy aeroplane of this character in which the various parts are simply and easily constructed and so associated or connected as to provide for the ready and convenient separation of the relative parts whenever repair or replacement is necessary.

A further object of the present invention is the provision of means by which the aeroplane may be self-sustaining in the nature of a toy balloon so that when it is desired to fly the same it is released and will rise in the air under its own buoyancy and may be thereafter kept in the air or sent to various heights by the combination of its own buoyancy and the pressure of the air, as in a kite.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a plan view, partly broken out, of the improved toy aeroplane showing the same constructed in the preferred form;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a front elevation of the same;

Figure 4 is a detail view showing the cap and the forward end of the fuselage designed to receive the cap;

Figure 5 is a section on the line 5—5 of Figure 4;

Figure 6 is a perspective view of the clip for connecting the wings and tail to the fuselage;

Figure 7 is a longitudinal sectional view of a modified form of fuselage;

Figure 8 is a section on the line 8—8 of Figure 7;

Figure 9 is a plan view of a modified form of wing frame;

Figure 10 is a section on the line 10—10 of Figure 9;

Figure 11 is a longitudinal section of a modified form of fuselage:

Figure 12 is a broken perspective showing the supporting frame for the modified form of fuselage;

Figure 13 is a plan view of a modified form of tail frame showing the same connected to the fuselage;

Figure 14 is a longitudinal section illustrating the means for connecting the modified tail frame to the fuselage;

Figure 15 is a section on the line 15—15 of Figure 14;

Figure 16 is a section on the line 16—16 of Figure 14;

Figure 17 is a perspective view of the clip used for connecting the modified form of tail frame to the fuselage;

Figure 18 is a transverse sectional view showing the means for connecting the landing gear in the modified form of fuselage shown in Figure 11.

The preferred form of toy aeroplane of this invention, as illustrated more particularly in Figures 1 to 4 inclusive, comprises a fuselage 1 constructed preferably of thin wooden strips to form a hollow, elongated body, the forward portion 2 of which is of uniform, transverse dimensions, while the rear portion 3 is of gradually converging form toward the tail end of the aeroplane to thereby simulate the usual aeroplane fuselage structure. The hollow fuselage is braced by hollow, rectangular frames 4, one such frame being particularly arranged at the forward open end of the portion 2. The opposite end of the tail or converging portion is provided with an interior solid block 5 so that the fuselage structure is of comparatively rigid, though light, formation.

The wing structure, the showing being of the monoplane type, is secured to the upper surface of the forward portion 2 of the fuselage. This wing structure comprises a single frame, the longitudinal side bars 6 of which are preferably wooden strips held in desired spaced relation by transverse wooden braces 7. The ends of the wings, in order to avoid breakage in the event the aeroplane falls to the ground or contacts with other obstructions, are preferably formed of appropriate wire lengths 8 bent into rounded form to complete the shape of the wing, with their terminals secured to the ends of the wooden strips 6, as more particularly shown in Figure 1.

As stated, the wing is secured transverse the body portion 2 of the fuselage and to the upper surface of the latter to permit the convenient removal of this wing portion, if necessary, for repair or replacement. The attachment is made through the medium of clips, illustrated more particularly in Figure 6, and including relatively broad base portions 9 which bear directly upon the upper surface of the portion 2 of the fuselage and narrow sections 10 which overlie the front and rear edges of the wings. A fastening means, such as a pin 11, may be passed through appro-

priate openings in the portions 9 and 10 of the clip, securing the wing removably to the fuselage. The clip is preferably constructed of a single piece of metal appropriately formed and the broad portions 9 may, if desired, be more or less fixedly secured to the fuselage, permitting the obvious and convenient application or removal of the wing in a simple, desired manner.

The wing frame including the parts 6, 7 and 8 is to be covered by a cloth covering 12, preferably of such weave as to permit a limited passage of air through the material when the aeroplane is being flown. This avoids undue gyrations of the aeroplane in use, assists it to remain steady in flight, and yet provides sufficient support from the body of air to permit the plane to fly naturally and easily. The tail frame is secured to the upper surface of the converging portion 3 of the fuselage, this frame including a wire section 13 bent into appropriate form and covered with material 14 similar to the material used for the wing. The tail is secured to the converging portion 3 of the fuselage by clips 15 and 16 similar in form to the clip shown in Figure 6, though possibly of less transverse area, the underlying broad portion lying on the fuselage surface and the overlying lip bearing upon the upper surface of the wing, with both clips secured to the fuselage by removable pins, tacks or nails, indicated at 17.

The landing gear is shown in the form of an inverted U-shaped frame 18, the cross bar 19 of which is secured to the lower surface of the portion 2 of the fuselage, with the lower terminals of the side bars of the frame carrying wheels 20 simulating the landing gear. The frame is preferably of a width exceeding the corresponding dimension of the fuselage to space the wheels apart in more exact simulation of the landing gear of an aeroplane, as indicated in Figure 1.

As an essential part of this preferred form, as well as the modified forms, auxiliary supporting means are to be used, if desired. For this purpose, an inflatable bag, preferably of rubber or the like and indicated at 21, is inserted in the fuselage, the bag being of appropriate form for this insertion and having a valved end 22 designed to be arranged adjacent the open end of the body portion 2 of the fuselage to permit the bag to be filled with a buoyant gas. Of course, the area of the parts and the particular gas used is such as to render the aeroplane structure as a whole inherently buoyant, in that if released it will rise in the air similar in this respect to the conventional toy balloon. The tail skid of the body is represented by a screw eye 23 threaded through the lower surface of the rear end of the portion 3 of the fuselage and into the block 5, the eye portion being rearwardly deflected to simulate a tail skid, as shown more particularly in Figure 2.

A metallic cap 24 is designed to fit frictionally over the open end of the body portion 2 of the fuselage, the forward portion of the cap being convergent and terminating in the form of a spindle 25 on which is mounted for free rotation an element 26 in the form of an aeroplane propeller. In the movement of the aeroplane through the air and the use of such as a kite, it is apparent that the propeller will be rapidly revolved due to passing air currents, and thus further simulate the appearance of an aeroplane during the flying of the toy.

If preferred, and as contemplated, the fuselage 1 may be constructed of light metal pressed into proper form, as indicated at 27 in Figures 7 and 8. In other respects the structure is as described in connection with the preferred form.

In Figures 9 to 18 inclusive there is shown a slightly modified form of construction having to do more particularly with simplified detail designed with a view to rendering the construction of economical formation and assemblage. In this form, the fuselage, indicated at 28, is of converging outline from the front to the rear and is formed of spaced bars 29 terminally anchored in blocks 30 and 31 dimensioned according to the forward and rear ends of the fuselage respectively, the bars 29 converging according to the desired outline plan of the fuselage. These bars, as well as the end blocks, are covered by a fabric covering 32, preferably of material corresponding to that shown for the wings and tail in the preferred form, in order to complete the outline formation of the fuselage.

The wing of this form, indicated more particularly in Figures 9 and 10, constitutes a full wire complement including front and rear wire bars 33, appropriately formed end wire bars 34, crossed wire struts 35, and a longitudinal brace strip 36. In this form, the central portion of the wing, that is, the portion in contact with the upper surface of the fuselage, is parallel to such fuselage surface, as indicated at 37, and from this central portion 37 the extended portions of the wings 38 incline upwardly and outwardly, as more particularly shown in Figure 10. This is with a view to simulating the accepted type of aeroplane and lending more reality to the toy. The wing is secured to the longitudinal bars 28 by clips corresponding to the clips shown in Figure 6 and indicated at 39, the broad portions of the clips being of sufficient length to overlie the upper bars 26.

The tail plane for this type of aeroplane is shown more particularly in Figure 13, wherein a single wire length is bent into appropriate form, as at 40, the terminals of the wire being projected in parallel contact with the longitudinal median plane of the frame, as at 41. This frame is covered with material similar to that previously described, and the tail frame is secured to the rear end of the fuselage by clips, one of which is shown particularly in Figure 17. This form of clip comprises a T-form section having a cross head 42 and a stem 43. In applying this clip, the stem is passed around the inner end cross bar 43' of the tail frame and the head portion is looped around the bars 41 of the frame, the clip being then secured in appropriate manner to the longitudinal bar of the fuselage or to the rear block 31 thereof, and the bars 41 remote from the cross bar 42 are united by a loop strip of metal 44, and the tail skid, here shown as an eye-bolt 45, is passed through the block 31 at the rear end of the fuselage and through the clip 44, being removably headed or provided with suitable fastening means above the frame. The eye-bolt below the frame is bent rearwardly to provide the skid.

The landing gear in this type of frame is shown more particularly in Figures 11 and 18 and comprises an inverted U-shaped frame 46, to the side bars 47 of which are connected the landing wheels 48. The cross bar 46 is secured to the frame by U-shaped clips 49 which embrace the two lower frame bars 29, the clips underlying the bars and being pressed over their upper edges, as indicated in Figure 16. The cross bar 46 of the landing frame is riveted or otherwise secured to the clips 49 and the frame is thus held in position, though

capable of convenient removal when desired for repair or replacement.

The frame bars 29 are projected in advance of the forward block 30 of the fuselage and thus provide a rectangular outline to receive a cap 50 having a spindle 51 on which in this instance is secured a propeller 52. The spindle is extended rearwardly through the frame bar and arranged in hook form, as at 53. A similar hook bar 54 is secured in a transverse strut 55 of the fuselage. A rubber band or like torsional element 56 is connected with the respective hooks so that the bar may be put under tension by turning the propellor by hand, serving to operate the propeller on the release of such turning strain.

The cap 24 of the preferred form, and also the cap 50 of the modified form, is provided with an eye 57 to which one terminal of a cord 58 is connected, the other terminal being connected to the tail skid 23 of the preferred form and 45 in the modified form. The usual cord 59 is connected at an appropriate point to the cord 58 to be used in flying the aeroplane.

As constructed, it will be apparent that the aeroplane parts are rigidly assembled and associated in a manner which renders the toy little liable to breakage. The parts are, however, readily separable when necessary for repair or replacement, thus providing the ideal toy, in that broken parts may be readily and conveniently replaced by anyone even with little skill. The toy is flown as a kite in the usual manner, or where the buoyant body is employed, as is contemplated, the flying movement is more or less of a restraining movement in guiding the toy, which floats in the air under its own buoyancy.

I claim:—

1. A toy aeroplane for use as a kite including a hollow fuselage, a wing structure including a frame having longitudinal side bars and curved end bars, a fabric covering for the frame, integral clips to be secured to the fuselage and overlie the frame of the wing to hold said wing in place, a cap closing the open end of the hollow fuselage and frictionally fitted thereon, and a propeller mounted for free rotation on the cap.

2. A toy aeroplane for use as a kite including a hollow fuselage, a wing structure including a frame having longitudinal side bars and curved end bars, a fabric covering for the frame, integral clips to be secured to the fuselage and overlie the frame of the wing to hold said wing in place, a cap closing the open end of the hollow fuselage and frictionally fitted thereon, a propeller mounted for free rotation on the cap, a tail structure including a frame having a fabric covering, clips securing the tail structure to the fuselage, a landing gear carried by the fuselage, and a tail skid carried by the fuselage underlying the tail structure.

3. A toy aeroplane for use as a kite including a hollow fuselage, a wing structure including a frame having longitudinal side bars and curved end bars, a fabric covering for the frame, integral clips to be secured to the fuselage and overlie the frame of the wing to hold said wing in place, a cap closing the open end of the hollow fuselage and frictionally fitted thereon, a propeller mounted for free rotation on the cap, a tail structure including a frame having a fabric covering, clips securing the tail structure to the fuselage, a landing gear carried by the fuselage, a tail skid carried by the fuselage underlying the tail structure, and means carried by the cap and tail skid to provide for the connection of a cord by means of which the aeroplane is flown in the air.

4. A toy aeroplane to be used as a kite comprising a hollow fuselage, a wing structure including a frame and a fabric covering therefor, clips removably securing the wings to the fuselage, a cap closing one end of the fuselage, a propeller on the cap, and a body for the reception of a buoyant gas removably arranged on the fuselage.

5. A toy aeroplane to be used as a kite comprising a hollow fuselage, a wing structure including a frame and a fabric covering therefor, clips removably securing the wings to the fuselage, a cap closing one end of the fuselage, a propeller on the cap, and a body for the reception of a buoyant gas removably arranged on the fuselage, said body having a filling opening at the open end of the fuselage.

AUGUST C. WURTZER.