

Aug. 8, 1939.

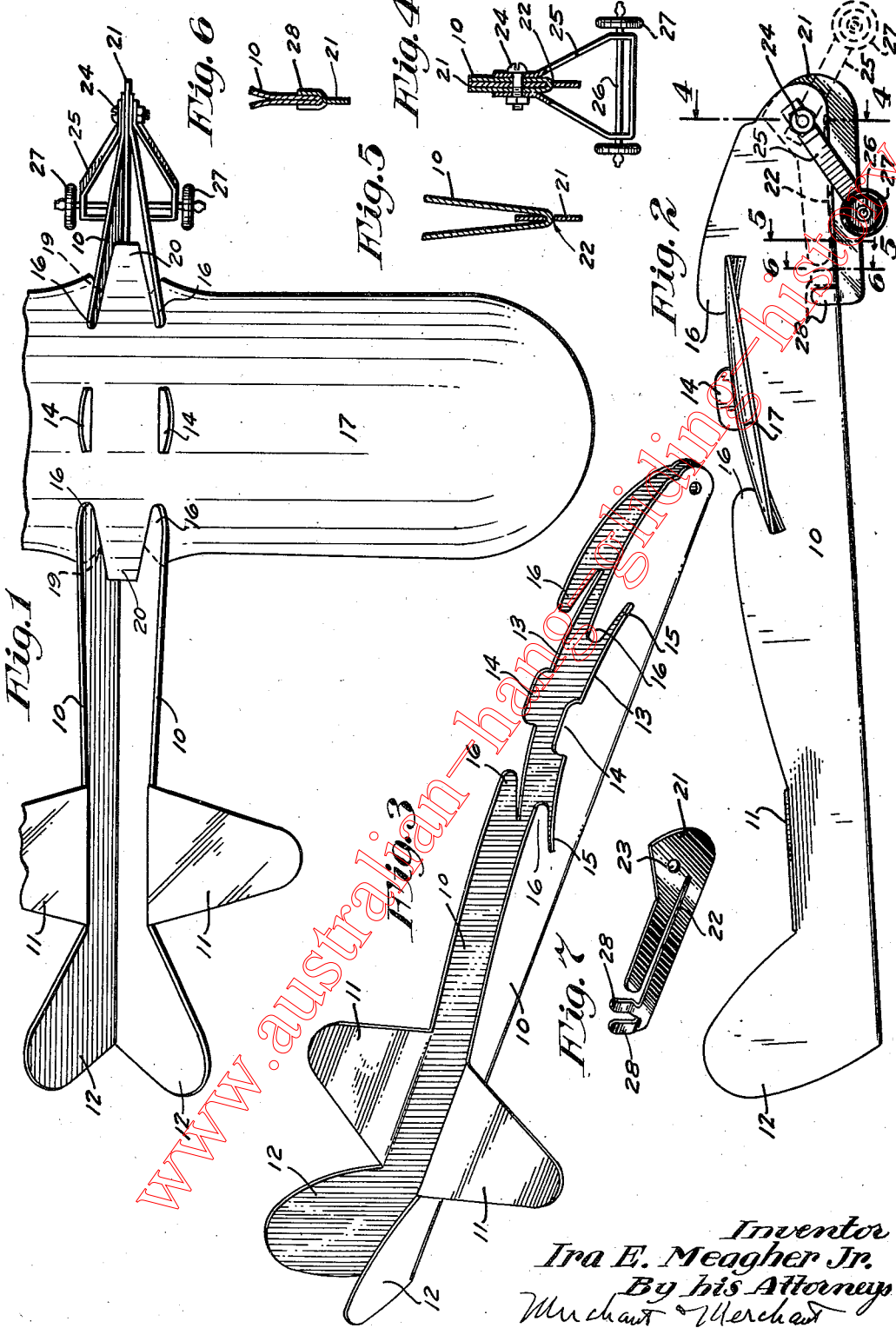
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2,168,653

TOY AIRPLANE

Filed Dec. 8, 1937

2 Sheets-Sheet 1



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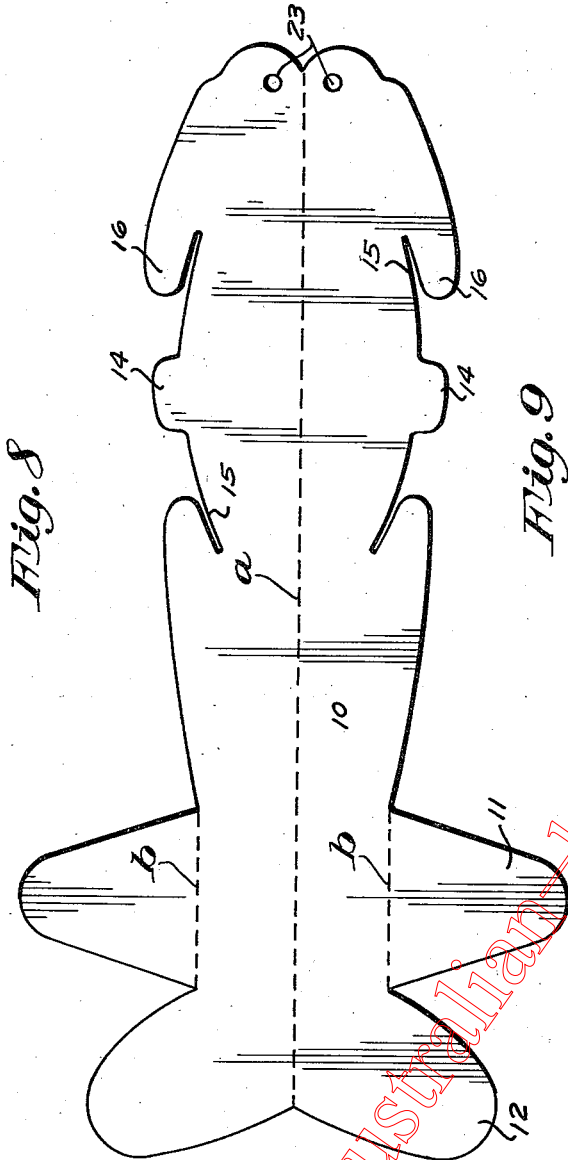
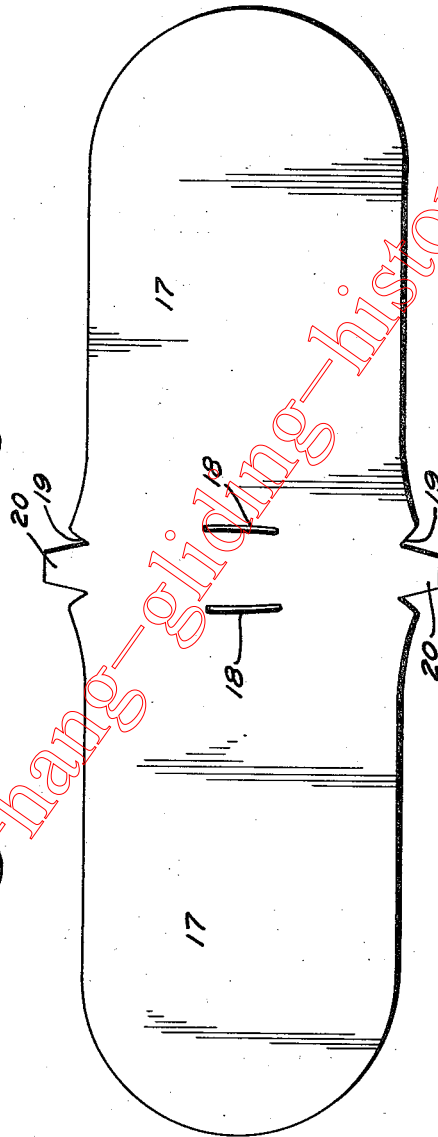


Fig. 9



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UNITED STATES PATENT OFFICE

2,168,653

TOY AIRPLANE

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Application December 8, 1937, Serial No. 178,711

6 Claims. (Cl. 46—79)

My invention provides a toy airplane that may be made from inexpensive materials, quickly assembled, and which, as a toy, will be efficient in flight.

5 The toy plane is intended to be hand thrown into flight and by various adjustments of a movable part thereof, may be adapted for different lines of flight, such as looping the loop or distance flight. The entire body of the fuselage is made from a single sheet which is preferably a rather stiff or light cardboard; and the entire wing structure is made from a single sheet, preferably of the same material. At the nose or front end of the fuselage is a thin sheet metal keel that reinforces that portion thereof and takes the impact in case the plane strikes an obstruction. To the front end of the fuselage or body, and preferably pivoted to the front end of the keel plate, is a landing gear that not only serves the purpose indicated by its name, but by forward and rearward adjustments will vary the line of flight of the plane in respect to altitude.

The invention also involves novel features in the manner in which the several parts thereof are detachably but securely connected.

25 A preferred form of the toy plane is illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views.

Referring to the drawings:

30 Fig. 1 is a plan view of the improved plane, some parts being broken away;

Fig. 2 is a side elevation of the complete plane;

35 Fig. 3 is a perspective showing the fuselage or body;

Figs. 4, 5 and 6 are sections taken, respectively, on the lines 4—4, 5—5 and 6—6 of Fig. 2;

Fig. 7 is a perspective of the metal keel plate;

40 Fig. 8 is a plan view showing in flattened out condition the sheet or plate from which the fuselage or body is formed; and

Fig. 9 is a plan view showing the wings as formed from a single sheet or plate.

45 The body of the fuselage is formed from a single plate or sheet 10 which is adapted to be bent on the longitudinal dotted line *a* to give the body a V-shaped form in cross-section and to be bent on the dotted lines *b* to form the horizontal stabilizing fins 11. At its rear end, the plate 10 is formed with rudder fins 12 which lie in the planes of the diverging sides of the fuselage when bent into the V-shaped formation indicated. Rearward of its front ends the upwardly extended sides of the fuselage are formed with upwardly bowed wing-seating edges 13

which, at their central portions, have upstanding lock lips 14. At the front and rear ends of the surfaces 13 the sides of the fuselage are formed with undercut notches 15 and overlying lock lugs 16.

5 The wing-forming plate or sheet 17 forms both wings of the plane and close to but equi-distant from the longitudinal center of the plate are slots 18 through which the lock lips 14 of the fuselage are adapted to be inserted. The front and rear edges of the central portion of the wing plate are insertable into the notches 15 and under the lock lugs 16 of the sides of the fuselage or body; and to make the interlocking engagement between the fuselage and wing structure complete, the wing plate is provided with front and rear notches 19 and intervening spacing lugs or projections 20. The side flanges of the fuselage, at the apices of the notches 15, engage in the wing notches 19 while the spacing lugs 20 project between the sides of the fuselage and hold the same properly spread or spaced.

25 The keel plate above referred to is a thin sheet metal plate 21 that has a long forwardly extending slot 22 that adapts this keel to straddle the bottom portion of the fuselage leaving a small portion of the said keel projecting beyond the nose of the fuselage. The front end flanges of the fuselage and the front end of the keel plate 21 are formed with coincident perforations 23 through which is passed a small pivot pin shown as in the form of a small nut-equipped bolt 24 which affords a pivot also for the leading gear. This landing gear may take different forms and may have one or more wheels, but preferably, and as shown, comprises a substantially triangular light metal bracket or frame 25, the upwardly projecting prongs of which embrace the nose of the fuselage and are pivotally attached thereto and to the front end of the keel 21 by the above noted bolt or pivot element 24. For the application of wheels to the lower portion of the landing frame 25, there is a light axle 26 equipped at its ends with small wheels 27.

45 To securely hold the keel plate 21 applied to the bottom of the front end portion of the fuselage, the lower prong thereof is provided with reversely bent clamping ears 28 that are clinched or pressed against the said fuselage.

50 The manner in which the plane will be thrown into flight is quite obvious. The lower prong of the keel plate 21 projects slightly below the bottom of the fuselage so that it affords a convenient portion to be engaged by the thumb and front finger of the throwing hand. This keel plate

55 with upwardly bowed wing-seating edges 13

gives enough weight to the front end of the plane to accelerate its flight under momentum imparted to the plane in the throwing action.

As above stated, the direction of flight, in respect to altitude, may be varied by adjustments of the so-called landing gear which, as an additional function, acts as a counterweight or variable balance for the plane. If, for example, the plane is to be thrown for looping action, the landing gear will be rearwardly adjusted. If the plane is to be thrown for a long distance flight, the landing gear will be set in an intermediate direction, but if it is to be given a nose dive, the landing gear should be forced far forward. Of course, the direction of the wind with which the plane is to be thrown will also have something to do with the adjustments of the landing gear, but these are matters which will soon be learned in practice in the throwing of the plane in action.

The manner of connecting the wing plate to the fuselage is important. When the plane strikes an obstruction and is brought to a sudden stop, there is a tendency for the wing plate to buckle and release itself from the fuselage; but this, in the present structure, is prevented not only by the above described duplex interlocking engagement between the front and rear edges of the wing plate and the flanges of the fuselage, but is further prevented by the projecting lips 14 that extend through the closely engaging slots or slits in the wing plate.

It will be noted that the upwardly curved edges 13 in co-operation with lock notches cause the wing plate to take a concavo-convex form in cross-section, such as required for efficient flight. This also puts the intervening portion of the wing plate under tension to closely engage with the overlying lock lugs 16.

From the foregoing, it will be obvious that the toy plane described is capable of various modifications within the scope of the invention disclosed and claimed.

What I claim is:

1. A toy airplane having a fuselage and wings,

the fuselage being formed of a plate bent approximately V-shaped in cross section, a bifurcated keel plate embracing the front lower portion of said fuselage with a portion thereof below and a portion projecting forward thereof, and a landing gear pivotally connected to the front portion of said fuselage and to the front portion of said keel plate by a pivot permitting forward and rearward adjustments of said landing gear.

2. A toy airplane having a fuselage and wings, the fuselage being formed of a plate bent approximately V-shaped in cross section, and a bifurcated keel plate embracing the front lower portion of said fuselage with a portion thereof below and a portion projecting forward thereof, said keel plate, at its rear end, having clamping ears clinched against the exterior of said fuselage.

3. In a toy airplane structure having a fuselage and wings, a landing gear depending from the forward portion of the fuselage, and means for pivotally anchoring the landing gear to the fuselage, for material forward and rearward pivotal movements, and for frictionally retaining the same in adjusted position.

4. The structure defined in claim 3 in which the said anchoring means is adjustable to vary the frictional resistance of the landing gear to pivotal adjusting movements.

5. The structure defined in claim 3 in which the pivotally anchored frictionally retained landing gear is movable pivotally to a material extent forwardly and rearwardly of a vertical line intersecting the axis of the pivotal anchor.

6. The structure defined in claim 3 in which the pivotally anchored frictionally retained landing gear is movable pivotally to a material extent forwardly and rearwardly of a vertical line intersecting the axis of the pivotal anchor, and in which the said anchoring means is adjustable to vary the frictional resistance of the landing gear to pivotal adjusting movements.

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