E. BLIESATH.

TOY AEROPLANE.

APPLICATION FILED DEC. 23, 1918.

1,300,564.

Patented Apr. 15, 1919.

2 SHEETS—SHEET 1.

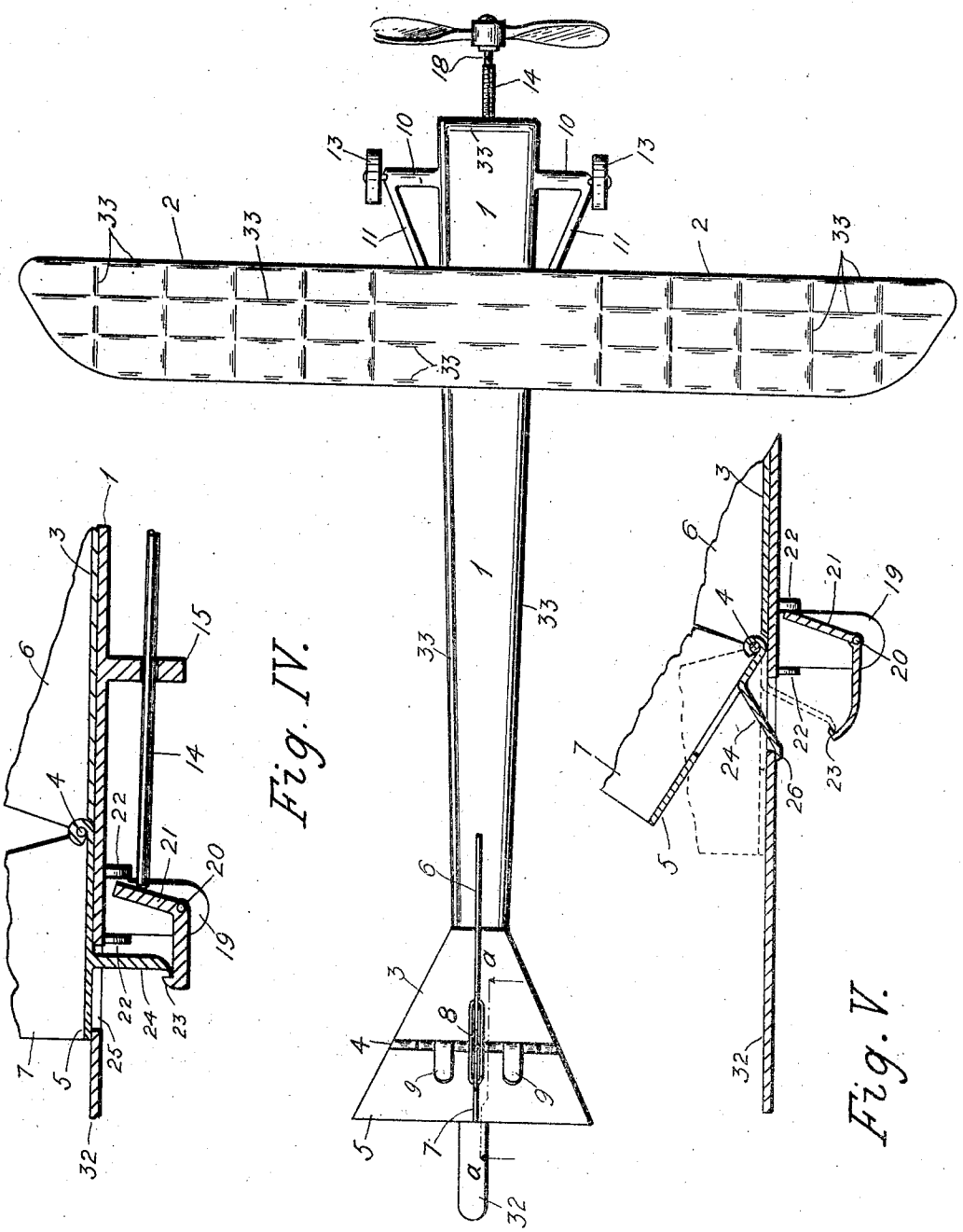


Fig. I.

Fig. IV.

Fig. V.

WITNESSES:

INVENTOR.
ERNEST BLIESATH
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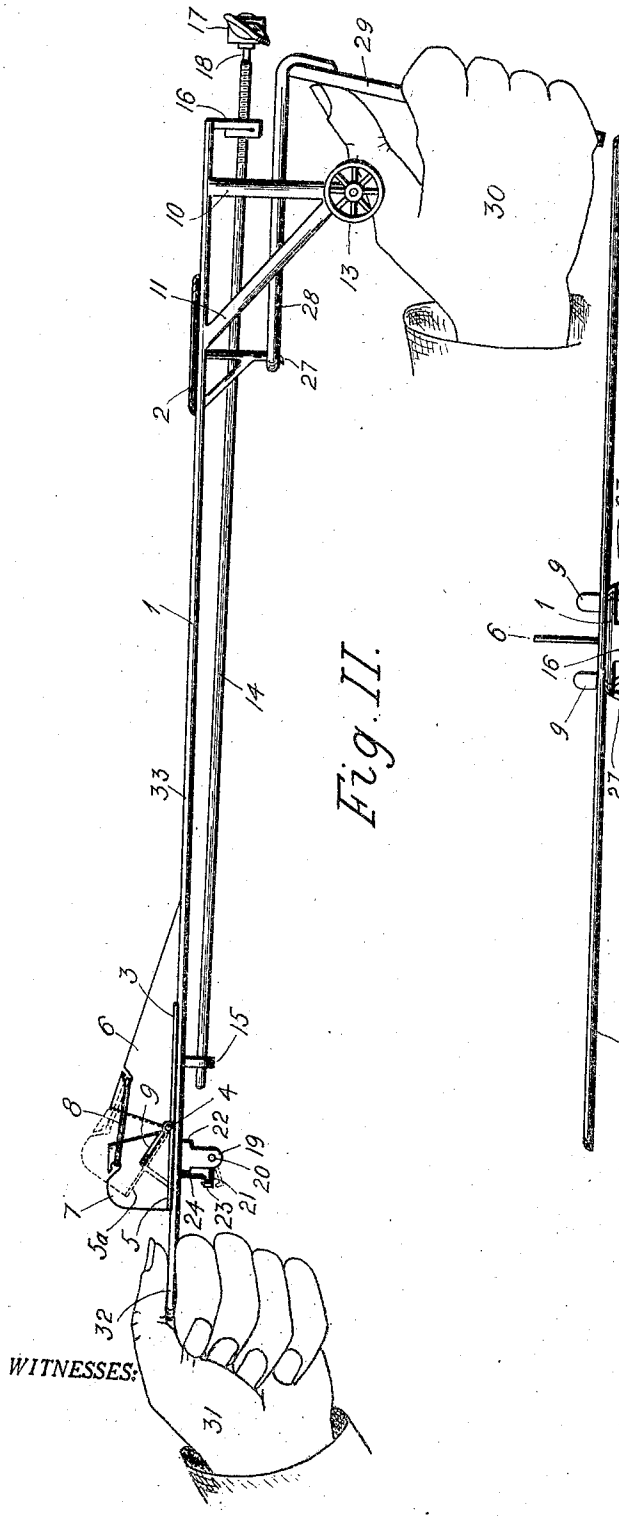


Fig. II.

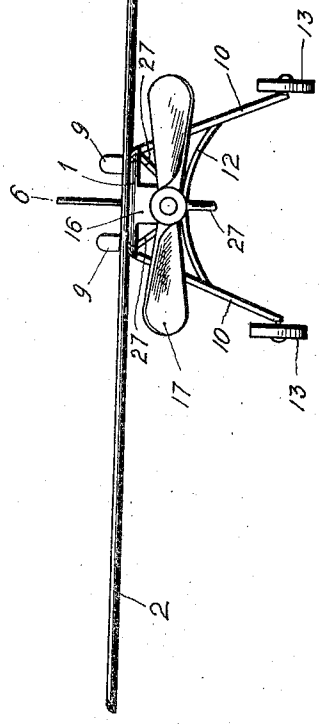


Fig. III.

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UNITED STATES PATENT OFFICE.

ERNEST BLIESATH, OF PORTLAND, OREGON, ASSIGNOR OF ONE-HALF TO GEORGE W. DE WITT, OF PORTLAND, OREGON.

TOY AEROPLANE.

1,300,564. Specification of Letters Patent. **Patented Apr. 15, 1919.**

Application filed December 23, 1918. Serial No. 268,020.

To all whom it may concern:

Be it known that I, ERNEST BLIESATH, a subject of the Republic of Germany, and resident of Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Toy Aeroplane, of which the following is a specification.

My invention relates to improvements in such toy aeroplanes as are projected into space by means of a rubber sling, and which will gradually descend after having gone through a series of graceful evolutions in mid air.

The objects of my invention are, to amuse children and to show them the effects of air on light bodies of certain shapes.

I attain these objects by the mechanism illustrated in the accompanying drawings in which—

Figure I is a plan view of the entire machine; Fig. II, a side view; Fig. III a front view; Fig. IV, on a larger scale, a section through the releasing mechanism for the elevation plane taken along the line *a—a* in Fig. I; and Fig. V is a slight modification of Fig. IV.

Similar numerals refer to similar parts throughout the several views.

My aeroplane resembles in miniature somewhat the type commonly known as the "Pfeil monoplane". It has a lengthy body portion called fuselage 1 and, attached to the latter at about the center of gravity, the main supporting plane 2. At the tail end we see the tail plane 3 and, hinged to it at 4, the elevation plane 5. On top of the tail plane is the vertical fin 6, and on top of the elevation plane the fin 7. A tension member 8, preferably a rubber band, at the upper edge of the fins will hold the elevation plane 5 at an angle to the fuselage, as shown by the dotted lines 5^a in Fig. II. The angularity is predetermined by the stops 9.

The chassis near the head end is represented by the downwardly and laterally extending legs 10 with the brace rods 11 in side view, the arched brace 12 in front view, and the wheels 13.

Underneath the fuselage is the propeller rod 14, held slidably at the tail end in the bearing 15, and mounted screwably at the head end in a downward extension 16 of the fuselage. A propeller 17 is firmly attached to the forward end of the propeller rod 14. It may here be pointed out that, adjacent to the propeller, a portion of the thread on the rod 14 has been cut away; the length of the gap 18 to correspond with the length of the female thread in which the rod is mounted. The result of this is, that the propeller 17 in revolving will shift the rod in axial direction throughout the whole length of the thread on the rod, but having arrived at the gap 18, the shifting ceases while the propeller is free to revolve unhindered.

The tail end of the propeller rod 14 operates the releasing mechanism for the elevation plane. In Fig. IV this releasing mechanism is illustrated in detail. Attached to the fuselage are the hangers 19, and pivoted between them at 20 is the bell crank 21. The upright member of the bell crank is limited in its movements by the ears 22 at the upper part of the hangers extending into the path of said member. The horizontal leg of the bell crank carries at its end a nose 23, and latter engages a tongue 24 which extends from the elevation plane 5 downwardly through a slot 25 in the fuselage. Thus a pressure of the propeller rod against the upright member of the bell crank will release the tongue and "set" the elevation plane.

A slight modification of the releasing mechanism is shown in Fig. V where the tongue 24 is stamped out of the elevation plane 5 and adapted to rest in the "set" position with its lower edge 26 against the fuselage. In this variation the stops 9 referred to in Figs. I and II may be omitted.

A suitable hook 27, depending from the fuselage near the chassis, serves to attach the rubber sling 28.

To operate the aeroplane, the propeller 17 is turned manually counter clockwise as far as the threads on the propeller rod 14 will permit, and left with the propeller blades extending horizontally. The rubber sling 28 is slipped over the hook 27, the operator takes the handle 29 of the rubber sling into his right hand 30, and with the left hand 31 he takes hold of the extension 32 to the fuselage at the tail end. The aeroplane is now projected into space. The air resistance will set the propeller in motion and the propeller rod will be screwed back until the bell crank releases the elevation plan.

Due to the "setting" of the elevation

plane, the course of the toy will be changed from a trajectory to a vertical loop and these loops will continue so long as the propelling momentum is greater than the force of gravity. But at last gravity begins to assert itself and the machine will float in the air, sometimes descending in a ballistic curve but more frequently describing large circles like an eagle who is eyeing its prey, till the ever lowering movements are interrupted by the earth. Of course, all these movements are apt to variations brought about by the wind or by accidental or intentional buckling or warping of the planes.

Any suitable material may be employed in the manufacture of my machine, but if the fuselage and the main supporting plane be made of very light metal, it is desirable that the reinforcing ridges 33 be stamped or embossed at the proper places, in order to prevent buckling and consequently ill functioning of my apparatus.

Having fully described my invention it will be seen that my objects have been accomplished, and though I have shown the preferred form of construction, I reserve to myself the right to make minor changes in this machine, providing I do not violate the spirit and principle of my claims.

I claim:

1. In a toy aeroplane, the combination of a fuselage, a main supporting plane above the center of gravity of the fuselage, a tail plane, an elevation plane adjacent to the tail plane, vertical fins on top of tail and elevation plane, means for operating the elevation plane in mid air, and means for projecting the aeroplane into space.

2. In a toy aeroplane, the combination of a fuselage, a main supporting plane above the center of gravity of the fuselage, a tail plane, an elevation plane attached to the tail plane, vertical fins on top of tail and elevation plane, a chassis at the head end of the fuselage, means to operate the elevation plane during the flight, and means to project the aeroplane into space.

3. In a toy aeroplane, the combination of a fuselage, a main supporting plane extending laterally from the fuselage above its center of gravity, a tail plane, an elevation plane hinged to the tail plane, vertical fins on top of tail and elevation plane, a tension member between tail and elevation plane, a wheel carrying chassis at the head end of the fuselage, means to operate the elevation plane during the flight, and means to project the aeroplane into space.

4. In a toy aeroplane, the combination of a fuselage, a main supporting plane, a tail plane, an elevation plane, vertical fins on top of tail and elevation plane, stops attached to the tail plane to hold the elevation plane at an angle to the fuselage, a tension member between tail and elevation plane, a tongue extending downward from the elevation plane through the fuselage, a bell crank adapted to engage said tongue, means to release said elevation plane in mid air, and means to project the aeroplane into space.

5. In a toy aeroplane, the combination of a fuselage, a main supporting plane, a tail plane, an elevation plane, vertical fins on top of tail and elevation plane, a tension member between tail and elevation plane, a tongue extending downward from the elevation plane, a bell crank underneath the fuselage to hold said tongue, a threaded propeller rod underneath the fuselage adapted to release in mid air said tongue from the bell crank, a propeller operated by the resistance of the air and actuating the propeller rod, and means to project the aeroplane into space.

ERNEST BLIESATH.