J. M. RUSSELL.

AMUSEMENT DEVICE.

APPLICATION FILED JUNE 21, 1920.

1,373,765. Patented Apr. 5, 1921.

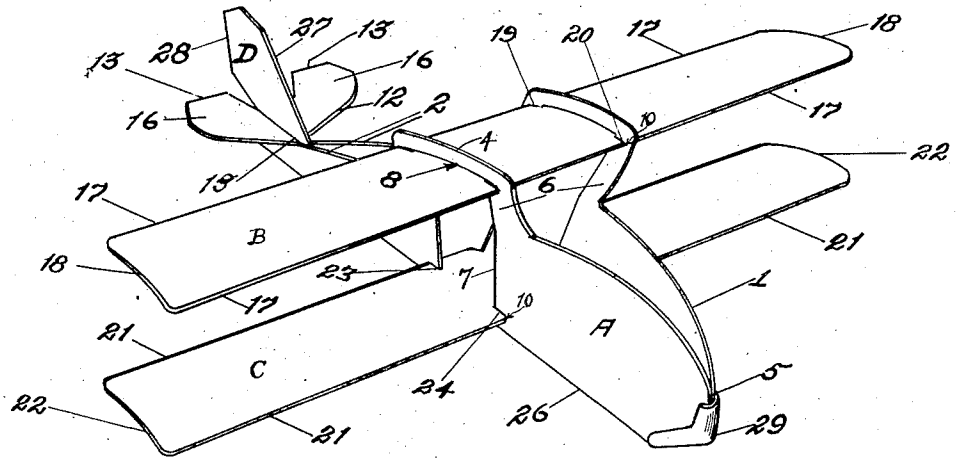

Fig. 2.

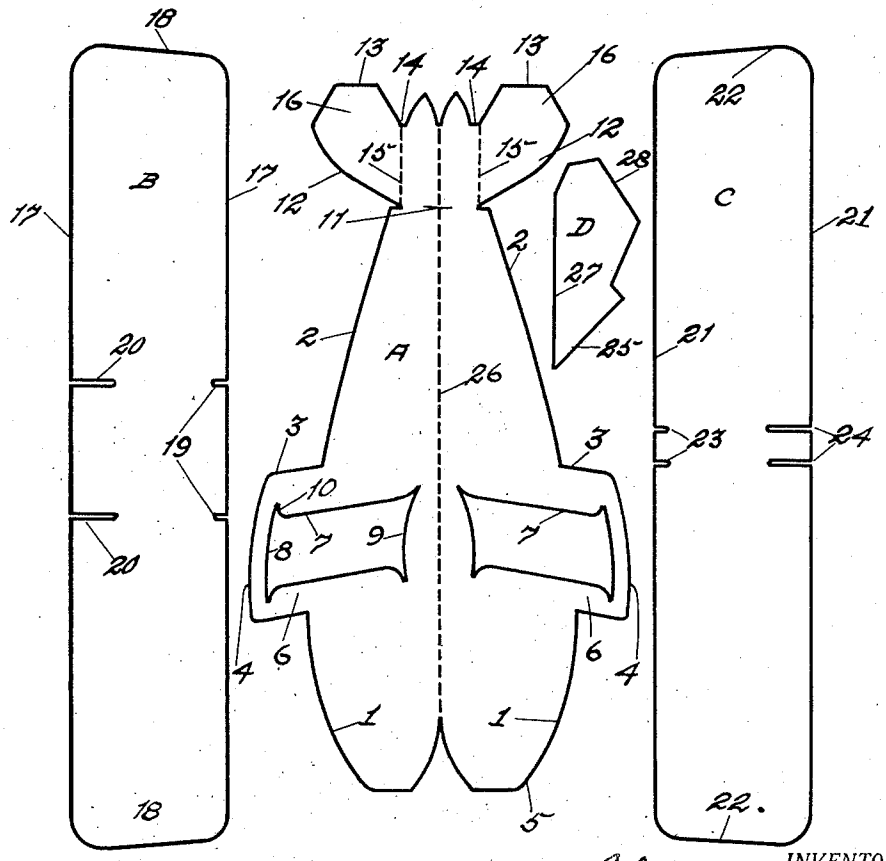

Fig. 1.

INVENTOR.

John M. Russell

BY Acker & Totten

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN M. RUSSELL, OF SAN FRANCISCO, CALIFORNIA.

AMUSEMENT DEVICE.

1,373,765. Specification of Letters Patent. Patented Apr. 5, 1921.

Application filed June 21, 1920. Serial No. 390,444.

To all whom it may concern:

Be it known that I, JOHN M. RUSSELL, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Amusement Devices, of which the following is a specification.

The present invention relates to an amusement device more particularly one in the form of an aerial apparatus having the characterizations of a biplane.

The principal objects of the present invention are to provide a construction adapted to be formed of foldable material such as heavy paper, and of such construction that if desirable the outline of the same may be stamped on a sheet to be cut therefrom by persons, particularly children, in the same manner as the conventional cut out dolls are now made. To provide a device capable of being used as an advertising medium and distributed free to the public owing to the extreme low cost thereof.

A further object is to provide a construction which is capable, after being cut from a sheet, of ready and easy assembly to provide a biplane capable of soaring or flying when properly thrown or projected by the user.

Another object is to provide a construction whereby the biplane is capable of being set to travel in a predetermined path, and whereby one after becoming experienced in the use of the device is capable of setting the same to perform a variety of stunts.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more fully comprehend the invention, reference is directed to the accompanying drawings, wherein:—

Figure 1 is a view in outline plan of the device as it appears when stamped on cardboard or a flexible sheet of material, and

Fig. 2 is a view in perspective of the construction in assembled position.

Referring to the drawings wherein like characters of reference designate corresponding parts, the letter A indicates a body outline, B the outline of the upper plane, C the outline of the lower plane and D the outline of the vertical rudder. Referring particularly to the outline A forming the body, the material is cut to form the forward end of the fuselage on the lines 1, and to form the rear portion of the fuselage on the lines 2; the lines 1 and 2 being connected by the strut forming lines 3 and strut connecting lines 4, the lines 3 being disposed angularly outwardly from the lines 1 and 2, and the lines 4 being disposed in a plane parallel with the general configuration of the lines 1 and 2. By cutting in this manner, and folding the cut out portion, longitudinally and centrally as hereinafter described, the fuselage is provided with a rounded nose 5 to form spaced struts 6 in rear of said rounded nose 5. The material of the fuselage is cut out on the lines 7 to a point close to the strut connecting line 4, and to a point extending approximately to the center folded line of the material hereinafter described, the cut out portion being substantially oblong in plan, and the end lines thereof being arcuately curved in substantially parallel plane as at 8 and 9, and connecting the lines 7 at their ends, the curve of the edges 8 determining the curvature of the upper plane of the biplane and the curvature of the edges 9 determining the curvature of the lower plane of the biplane. The points of intersection of the lines 8 and 9 with the opposite ends of the lines 7 form notched plane retaining seats 10 and 11. The lines 2 converge toward the rear of the body, as in Fig. 1, to a point adjacent the tail end 11 of the body and thence connect with the outwardly disposed lines 12 which are continued in an angular path 13 terminating at points 14 which are in a line disposed parallel of the body, and connected by crease lines 15 with the commencement of lines 12 forming horizontal rudders 16 which are disposed one on each side of the tail of the fuselage on the folding of the cut out body.

In forming the upper plane B, the material is cut on the parallel lines 17 to form the side edges of the plane, and on the end lines 18 to form the ends of the plane, and to provide an interlocking connection between the plane and the front and rear struts

6 at opposite sides of the fuselage; the front edge of the plane is slotted rearwardly as at 19, and the rear edge is slotted forwardly as at 20. The depth of the slots 20 is relatively greater than that of the slots 19, and the said slots are disposed in parallel alinement with said slots 19.

In forming the lower plane C, the material is cut on the parallel lines 21 to form the side edges of the plane, and on the lines 22 to form the ends thereof, and so that said plane will have interlocking connection with the fuselage at the base of the struts 6 at the points 11, the forward edge is slotted as at 23, and the rear edge is slotted as at 24, the slots 23 and 24 in this plane being disposed in parallel alinement as in the upper plane, but being arranged closer together than in the upper plane B; this being necessary, as from Fig. 2 it will be observed that, when the material A is folded the struts 6 at opposite sides of the fuselage converge toward the base line thereof.

In forming the vertical rudder D, the material is cut so that when said rudder is in a position disposed between the horizontal rudders 16, the base line 25 of said vertical rudder D will rest on the material A at the rear end of the longitudinal crease line 26, and have an upwardly and rearwardly extending front at 27 and a suitable rear end 28 fashioned to imitate the conventional lines of the power driven, operator carrying commercial airplanes. The material after being cut, as previously described, the body A is folded longitudinally on the crease line 26, which disposes the sides thereof forming the fuselage in V-shaped formation in vertical section. The horizontal rudders 16 are then disposed in a substantially horizontal plane at approximately right angles to the side walls of the fuselage by being bent outwardly and downwardly on the lines 15. The vertical rudder D is then inserted between the adjacent inner face of the material forming the body A of the fuselage with the edge 25 resting on the crease line 26 to dispose the rudder at substantially right angles to the horizontal rudders 16, as in Fig. 2 of the drawings.

To unite the vertical ends of the fuselage forming members together to provide a balance weight for the plane to insure the balance thereof when in flight and to protect the nose of the fuselage, I prefer to employ a suitable metallic nose guard 29 of any pliable metallic material which is clamped or crimped over the curved forward ends 5 of the nose of the fuselage, as in Fig. 2 of the drawings.

The upper plane B having been cut from the material is inserted lengthwise through the openings within the cut out lines 7, 8, and 9, with the slots 19 disposed toward the nose of the plane, the same is then adjusted until the slots 20 are received in the respective forward and rearward pockets 10 on the upper ends of the struts 6. The lower plane having been cut from the material is inserted in the same manner as the upper plane B with the slots 23 and 24 received in the pockets 11 at the base of the struts at opposite sides of the fuselage, as in Fig. 2 of the drawings. The tail of the plane is held together in any suitable manner when folded either by a light metallic clip, not illustrated, or by means of a suitable adhesive, which also insures the retaining of the vertical rudder D in upright position, as in Fig. 2 of the drawings.

In operation, the plane or toy when assembled, as in Fig. 2 of the drawings, is grasped between the fingers by the tail immediately below the horizontal rudders 16, and the user projects or thrusts the same forwardly, and upon releasing the grip on the tail, the plane will soar for a short distance depending on the power of the projection thereof.

It will be apparent that, while I have illustrated a biplane constructed in the above manner, with very little change the same may be made into a triplane or monoplane, the only requirement being the positioning of the planes relative to the struts.

It will be apparent that the parts are capable of being easily and quickly assembled and separated thus adapting the device for easy transportation in the usual sized mailing envelop, and also that when the planes are demounted advertising matter may be readily applied thereto and the toy, owing to its low cost of manufacture, and its great amusing qualities may be readily used for advertising purposes.

I claim:—

1. A device of the described class comprising a fuselage formed of a single piece of sheet material, plane supporting struts integral with the side walls thereof, horizontal direction controlling rudders integral with the fuselage, sustaining planes removably connected with the fuselage through said struts and a balancing weight on the forward end of the fuselage.

2. A device of the described class comprising a fuselage formed of a single sheet of material folded on its keel line to provide upwardly diverging fuselage side wall members, a portion of said side walls extending above the main upper edges of the fuselage, and said fuselage side walls and upwardly extending portions being provided with plane receiving openings, a pair of planes arranged in parallel spaced relation transversely of the fuselage and extending through said opening, means associated with the edges of said opening and said plane edges whereby said planes are detachably secured in position, and a pair of horizontal

direction controlling rudders and a vertical direction controlling rudder at the tail of the fuselage and a balancing weight at the forward end of the fuselage for maintaining the forward ends of the said side walls thereof in contact to provide a sharp nose for said fuselage.

3. A device of the described class comprising a fuselage pointed at its front and rear ends, and formed of a single sheet of material bent on a longitudinal line to provide upwardly and outwardly flaring fuselage side walls, spaced struts carried by the fuselage side walls and integral therewith, means connecting said struts at their upper ends, and a plane removably held between the struts and extending transversely of the fuselage between said struts.

4. A device of the described class comprising a fuselage, spaced struts carried at opposite sides thereof and integral therewith, means connecting said struts at their upper ends, and a pair of planes disposed in parallel spaced relation transversely of said fuselage and removably held between said struts at their upper and lower ends.

5. A device of the class described comprising a fuselage formed of a single sheet of material folded longitudinally on a keel line providing side walls extending outwardly at an angle from the keel line and provided at the rear with integral portions foldable on a line to extend horizontally one from each side of the tail of the fuselage to provide horizontal rudders, a balance weight secured to the fuselage adjacent its nose, said fuselage side walls being provided with an opening extending transversely therethrough, a pair of planes disposed in parallel relation transversely through the openings in said fuselage side walls and provided with means for detachably holding the same in position within said openings adjacent the upper and lower ends thereof, and a vertical rudder held between the horizontal rudders at the tail of the fuselage.

6. A device of the class described comprising a fuselage, plane supporting struts and horizontal rudders formed of a single piece of paper stock, a pair of parallel spaced planes each formed of a single piece of paper stock detachably held transversely of the fuselage in engagement with said strut walls, means for retaining the forward ends of the fuselage side walls in contact, and a vertical rudder held between said horizontal rudders at the tail of the fuselage.

7. A device of the described class comprising a fuselage, spaced struts carried at opposite sides thereof and integral therewith, means connecting said struts at their upper ends, a pair of planes disposed in parallel spaced relation transversely of said fuselage and removably held between said struts at their upper and lower ends, and a balance weight secured to the nose of the fuselage.

8. A device of the described class comprising a fuselage pointed at its front and rear ends, and formed of a single sheet of material bent on a longitudinal line to provide upwardly and outwardly flaring fuselage side walls, spaced struts carried by the fuselage side walls and integral therewith, a plane removably held between the struts and extending transversely of the fuselage between said struts, and a balancing weight secured to the fuselage adjacent to its forward end.

9. A device of the described class comprising a fuselage pointed at its front and rear ends and formed of a single sheet of material bent on a longitudinal line to provide upwardly and outwardly flaring fuselage side walls, spaced struts carried by the fuselage side walls and integral therewith, a plane removably held between the struts and extending transversely of the fuselage between said struts, a balancing weight secured to the front end of said fuselage for uniting the forward ends of said side walls, and means for uniting the rear ends of said fuselage side walls.

10. A device of the described class comprising an elongated fuselage pointed at its opposite ends and formed intermediate thereof with spaced side walls, plane supporting struts integral with the fuselage side walls, a sustaining plane disposed transversely of the fuselage and removably connected therewith through said struts, and a balancing weight secured to the fuselage adjacent to its forward pointed end.

In testimony whereof I have signed my name to this specification.

JOHN M. RUSSELL.