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Goodman

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[54] TOY AIRPLANE

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[52] **U.S. Cl.** **46/79**

[51] **Int. Cl.** **A63h 27/00**

[58] **Field of Search** 46/74, 78, 79

[56] **References Cited**

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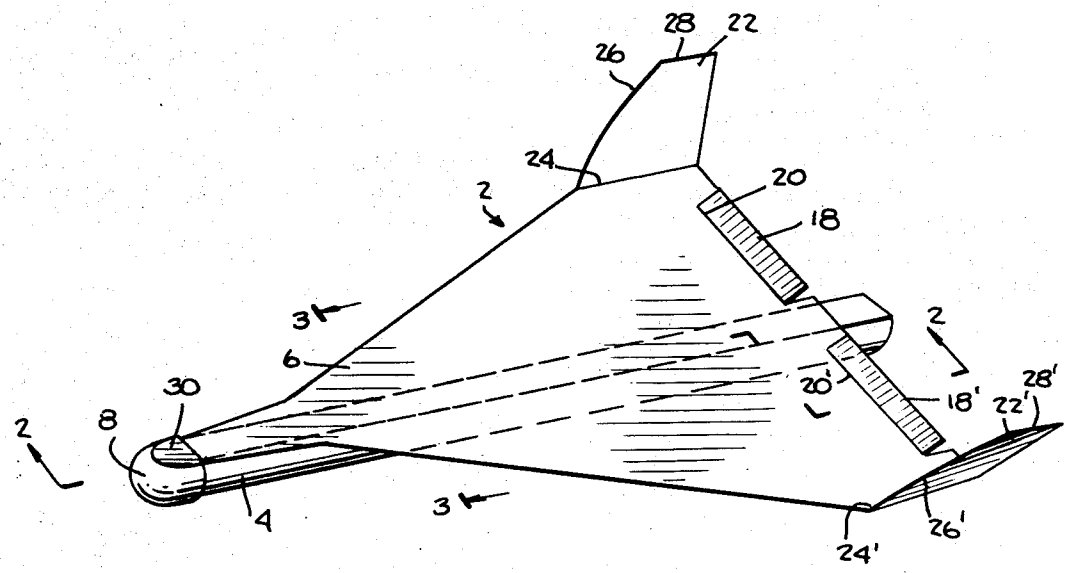
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[57] **ABSTRACT**

A toy airplane having a single section fuselage with a flattened upper surface adapted to provide a glue surface for a flattened integrally formed wing structure.

8 Claims, 4 Drawing Figures



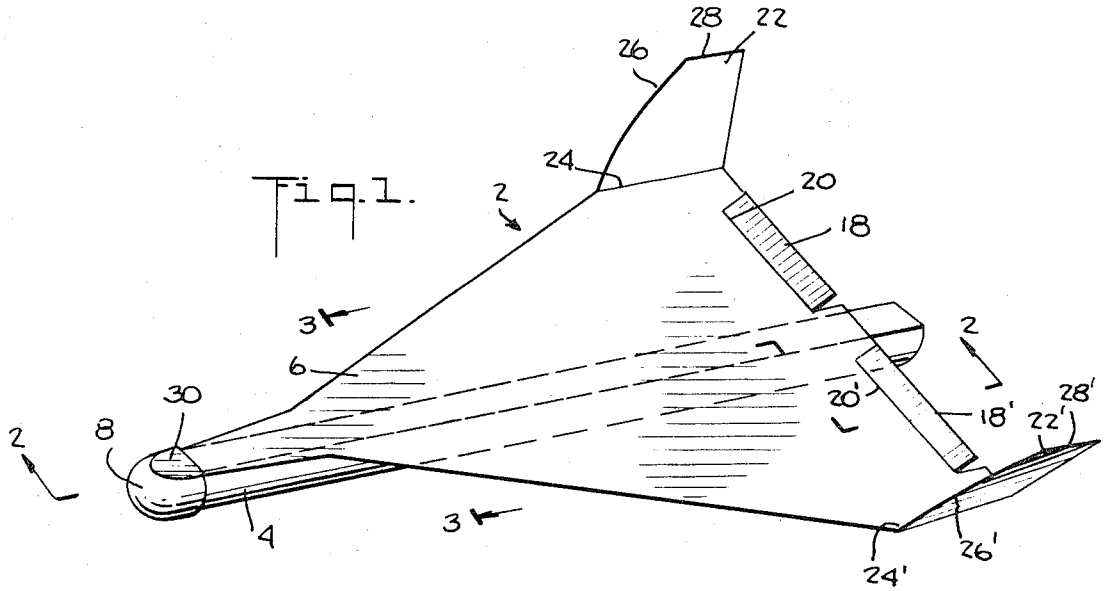


Fig. 1.

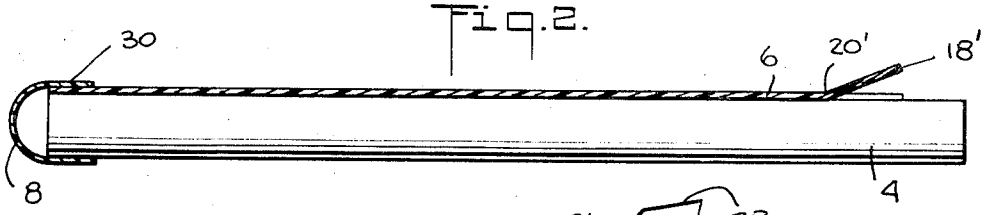


Fig. 2.

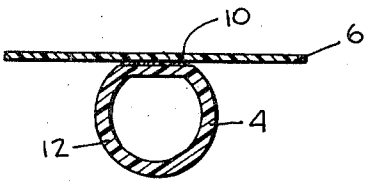


Fig. 3.

Fig. 4.

TOY AIRPLANE

FIELD OF THE INVENTION

The invention relates generally to toy airplanes. The invention has particular application in toss-type toy airplanes.

BACKGROUND OF THE INVENTION

Small toss-type airplanes have been popular for many years. These toss-type toy airplanes range from the home-made airplane assembled from paper to more elaborate commercial types. In the past, the commercial type toss-type airplanes have been either difficult to assemble or lacking in durability.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a toss-type toy airplane which can be readily assembled and which can withstand considerable use.

It is a further object of the present invention to provide a toss-type airplane which can be easily weighted to provide an aerodynamically sound vehicle.

The toss-type airplane of the present invention is comprised of a unitary fuselage section which has a flattened upper surface, a unitary wing section with integrally formed control surfaces and a nose cap. The flattened upper surface of the fuselage section is provided for fixedly mounting the wing surface thereto. The area extending along the longitudinal center line of the wing assembly is mounted directly on the flattened upper surface of the fuselage and secured thereto by appropriate means such as glue. The nose cap is secured over both the front of the fuselage and optionally over a portion of the wing section which extends to the front of the fuselage.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the toss-type toy airplane of the subject invention in its assembled form;

FIG. **2** is a sectional elevational view of the toss-type toy airplane of FIG. **1** taken through line **2—2**;

FIG. **3** is a sectional elevational view of the toss-type toy airplane of FIG. **1** taken through line **3—3**; and

FIG. **4** is an exploded view of the toss-type toy airplane of the subject invention showing the individual parts thereof.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred embodiment of the subject invention is shown in the drawings. Essentially, the toss-type toy airplane **2**, best seen in FIG. **1**, is comprised of a fuselage section **4**, a wing section **6** and a nose cap **8**.

As best seen in FIG. **4**, the fuselage section **4** is a unitary piece provided with a flattened upper surface **10**. The body section of the fuselage **4** is configured in an essentially circular cross-sectional shape as best seen in FIG. **3**. A configuration other than circular is possible, however, for best aerodynamic performance the essentially circular cross section has been found to be most preferable in practice. In practice, polyethylene, or similar conventional plastic materials have been found to be suitable materials for use in the fuselage section **4**.

The wing section **6** is provided with a main wing section **14** which is configured in the classical swept back mode and a forward section **16** which is swept back at a more pronounced angle than the main wing section **14**. Ailerons **18** and **18'** are also provided. The ailerons **18** and **18'** are integrally formed with the wing structure **6**. The ailerons **18** and **18'** are bent along fold lines **20** and **20'** respectively and can be elevated to any desired angle. In practice it has been found that an angle of approximately 5° to 40°, and preferably 20° provides the best aerodynamic characteristics for the toss-type toy airplane of the subject invention. An empennage section comprised of twin vertical tails **22** and **22'** is also provided. The twin tails **22** and **22'** are also integrally formed with the wing member **6** and are folded upwardly along fold lines **24** and **24'**.

The twin tail members **22** and **22'** can be configured in virtually any conventional tail shape. However, in practice it has been found that for the application in the present toss-type toy airplane, the tail sections **22** and **22'** should be provided with a curved leading edge **26, 26'** and a flat upper edge **28, 28'** which when in the assembled state is essentially parallel to the wing surface **14**. In practice it has been found that polyethylene, or similar conventional plastic materials provide suitable material for use in the thin wing section **6**.

The nose member **8**, best seen in FIG. **2** is shaped in the form of a cap. The nose cap **8** can either be completely circular in cross section as shown in FIG. **4** or can be provided with a flattened upper surface **30** as best seen in FIGS. **1** and **2** to conform to the contour of the fuselage cross section **4**.

In the assembled state, the wing section **6** is fixedly adhered to the upper surface **10** of the fuselage **4**. For aerodynamic balance it is necessary that the longitudinal center line of the wing section **6** be placed on the flat glue surface **10** of the fuselage. Although a glue has been found to be the most suitable adhesion means for connecting the wing section **6** to the flattened surface **10** of the fuselage section **4**, other attachment means such as staples can be used.

The final step in the assembly of the toy airplane is the placing of the nose cap **8** on the nose of the fuselage **4**. The nose cap **8** can be glued or otherwise fixed to the fuselage **4**. However, in practice it has been found that the nose cap **8** should be sized to force-fit on the airplane to provide the best results. The nose cap **8** affords the dual benefits of providing a weighted member to contribute to the aerodynamic balance of the toy airplane and means to assist in retaining the leading edge of the wing section on the fuselage **4**.

I claim:

1. A toss-type toy airplane comprising: a fuselage section having a flattened upper surface extending the entire length thereof;

a thin unitary wing section of swept back configuration attached along its longitudinal center line to the flattened upper surface of the fuselage;

means to adhere the wing section to the upper surface of the fuselage section; and

a weighted nose section configured in the form of a cap with a circular cross section having an inner diameter approximately equal to the outside diameter of the fuselage section and front edge of the wing; and a flattened upper surface to conform to the surface of the fuselage section and retain the front of wing section to the fuselage section.

2. A toss-type toy airplane as in claim **1** further comprising ailerons and an empennage section integrally formed with the swept back wing section.

3. A toss-type toy airplane as in claim 2 wherein the empennage section is comprised of twin tail sections.

4. A toss-type toy airplane as in claim 3 wherein the twin tail sections are provided with rounded leading edges and a flattened upper surface which is parallel to the surface of the swept-back wing.

5. A toss-type toy airplane as in claim 1 wherein the means to attach the wing section to the surface of the fuselage is glue.

6. A toss-type toy airplane as in claim 4 wherein the means to attach the wing section to the surface of the fuselage is glue.

7. A toss-type toy airplane as in claim 6 wherein the ailerons are deflected upwardly from the horizontal at an angle of between 5°–40°.

8. A toss-type toy airplane as in claim 6 wherein the ailerons are deflected upwardly from the horizontal at an angle of 20°.

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