Nov. 17, 1970 L. G. LOWE 3,540,149

TOY AIRCRAFT HAVING WEIGHTED AND REINFORCED STRUCTURE

Filed July 8, 1970

2 Sheets-Sheet 1

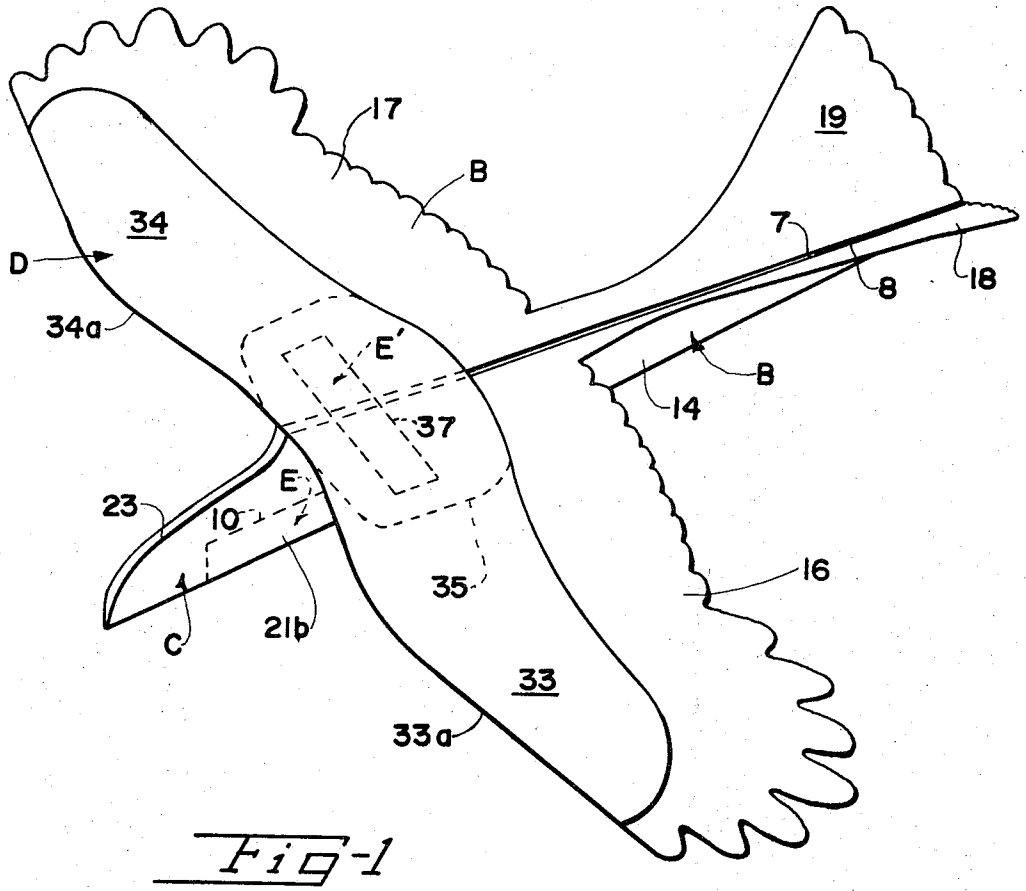


Fig-1

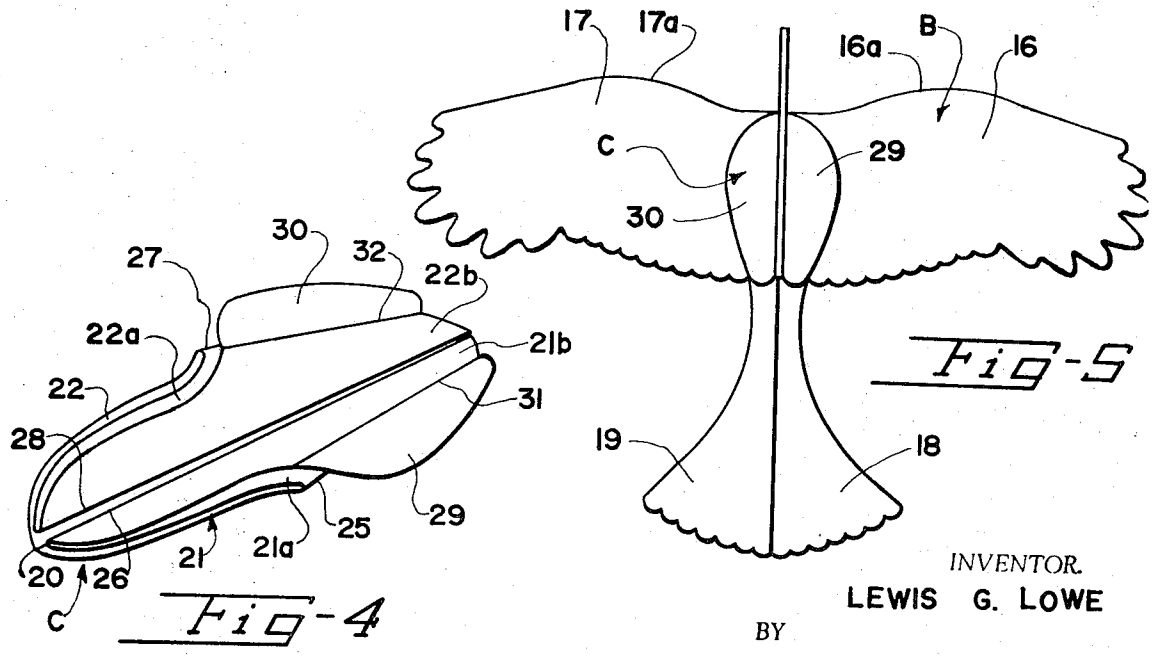


Fig-5

Fig-4

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Filed July 8, 1970 2 Sheets-Sheet 2

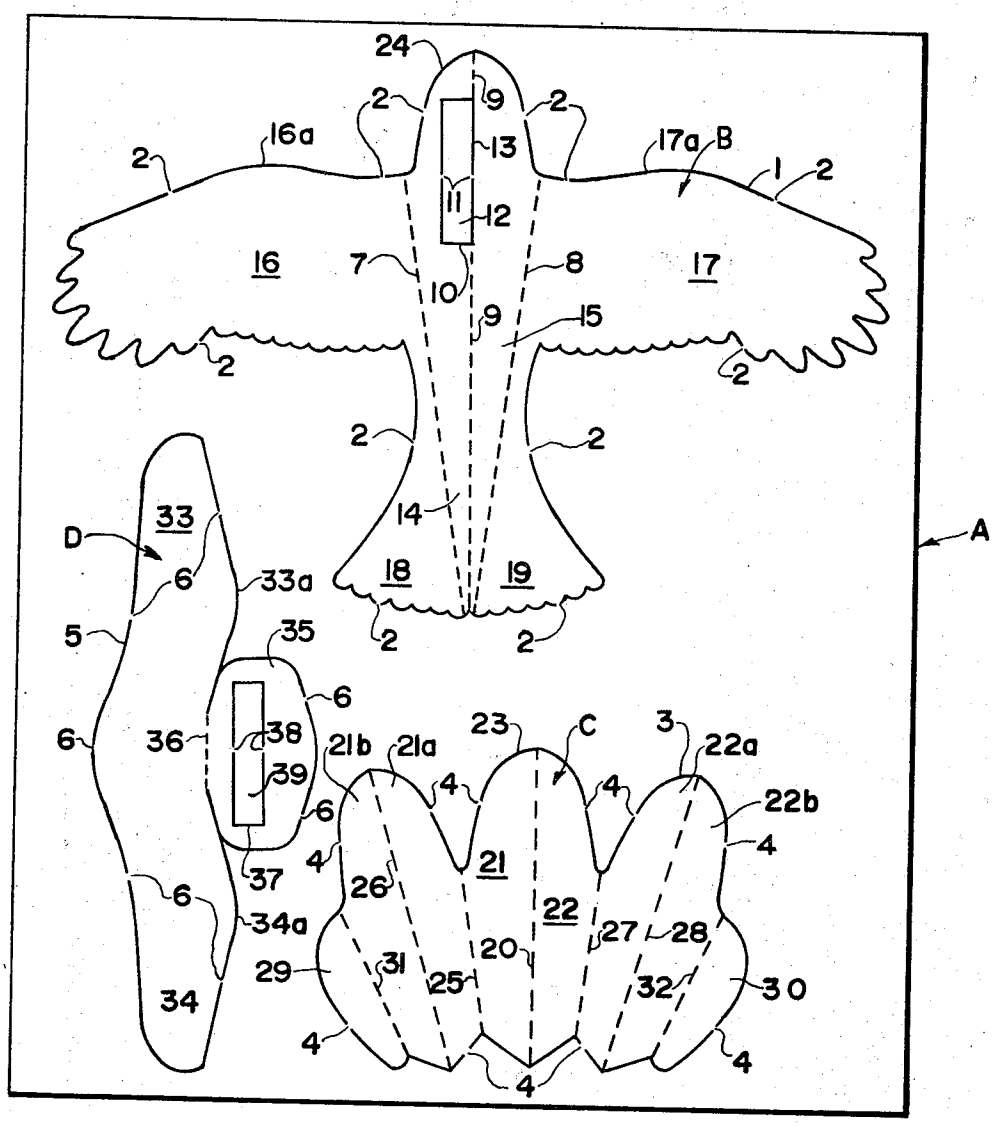


Fig-2

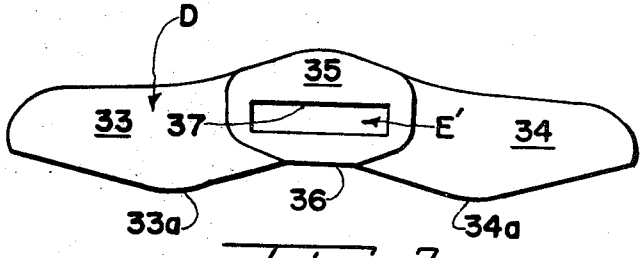


Fig-3

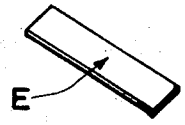


Fig-6

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United States Patent Office 3,540,149 Patented Nov. 17, 1970

3,540,149

TOY AIRCRAFT HAVING WEIGHTED AND REINFORCED STRUCTURE

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Filed July 8, 1968, Ser. No. 743,173
Int. Cl. A63h 27/00
U.S. Cl. 46—79 7 Claims

ABSTRACT OF THE DISCLOSURE

A toy aircraft made from three foldable blanks. One blank includes a pair of wings shaped like birds' wings and a fuselage shaped like a bird's head, body and tail, and has an elongated opening for receiving a weighted strip along the fuselage. A second blank provides reinforcement for the fuselage, an additional connection between the wings and fuselage, and a covering for the weighted strip. The third blank extends across the tops of the two wings and has a portion folded under it, with an elongated opening for receiving a second weighted bendable metal strip that extends transversely to the first strip and projects laterally beyond both sides of the fuselage and into the wings for holding them at the desired dihedral angle.

BACKGROUND OF THE INVENTION

Field of the invention

Considerable has been done in the designing of toy aircraft made from blanks that are cut and folded in a predetermined manner. It is desirable to make them look like aircraft as well as have them glide gracefully through the air when they are released by a throwing action of a person's arm. It is necessary to give weight and rigidity to the aircraft at certain points and to have the center of gravity at a desired place on the fuselage.

Description of the prior art

The patent to Russell P. Ferlen on a model airplane, No. 2,825,179, issued Mar. 4, 1958, and the patent to William J. Shapiro, on a toy aircraft and blank, No. 3,221,441, issued Dec. 7, 1965, both show blanks that can be folded to represent an airplane. Neither patent shows the provision of an opening in the fuselage portion of the blank for receiving a weighted strip that extends lengthwise along the fuselage, the weight being concealed and held in place by a second blank that is folded so as to form a part of the fuselage, the second blank also reinforcing the airplane wings. Also neither patent shows a third blank provided with an opening for receiving a second weighted strip that extends laterally across the first strip and serves the triple purpose of: (1) giving rigidity to the wing structure; (2) adding weight near the center of gravity of the airplane; and (3) holding the wings at the desired dihedral angle. The third blank holds the second weighted strip in place and conceals it.

SUMMARY OF THE INVENTION

An object of my invention is to provide a sheet of material that has three blanks die cut therein that can be readily removed from the sheet. The three blanks have fold lines indicated thereon. The first blank forms the wings and fuselage of the airplane when folded. The wings and fuselage are shaped to resemble the wings and body of a bird. An opening in the fuselage receives a weighted strip. The second blank when folded is adapted to be secured to the fuselage by adhesive and will give body and strength to it as well as cover the strip. The third blank has an opening for receiving a second weighted strip and this blank when folded and applied to the tops of the two wings by adhesive will cover the second strip and position it so as to extend laterally of the first strip and project a short distance along both wings. The positioning of the two weighted strips at the center of gravity of the airplane gives weight, strength and rigidity at this point. The second strip can be bent at its center and thus will constitute means to hold the wings at the desired dihedral angle.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the completely constructed airplane.

FIG. 2 illustrates a sheet of material with the three blanks being die-cut therein.

FIG. 3 shows one of the blanks folded preparatory to being applied to the tops of the two airplane wings.

FIG. 4 is a perspective view and shows the fuselage reinforcing blank in partially folded position. The thickness of the material is shown by a single line.

FIG. 5 is a bottom plan view of the completely constructed airplane.

FIG. 6 is an isometric view of one of the weighted strips.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In carrying out my invention I provide a sheet of material A, that has three die-cut blanks B, C and D thereon. The blank B, has a die-cut outline **1** with uncut spaces **2** for holding the blank to the sheet A, until the blank is punched out by fingers or the uncut portions **2** are cut by scissors. In like manner the blank C, has a die-cut outline **3** with uncut spaces **4**, and the blank D, has a die-cut outline **5** with uncut spaces **6**.

The blank B, has a fuselage portion bounded by a pair of outwardly flared dash lines **7** and **8**. A dotted median line **9** bisects the angle formed by the diverging dotted lines and this line extends throughout the entire length of the fuselage. The blank B has a die-cut rectangular outline **10** with uncut spaces **11** which hold the material, bordered by the die-cut rectangle, to the blank. The die-cut rectangle **12** may be punched out by using the fingers or the die, not shown, could cut a rectangular opening in the blank B. One edge **13** of the rectangular-shaped die-cut **10** coincides with the median dotted line **9** and it will be noted that the die-cut is placed near to the front end of the fuselage portion of the blank B.

The blank B when removed from the sheet A is folded along the median fold line **9**, see FIG. 2, where the line **9** is shown, and then is folded again along the fold lines **7** and **8**. This will bring the triangular area **14**, defined by the dash lines **7** and **9**, up against another triangular area **15** which is defined by the dash lines **8** and **9**. An adhesive may be applied to the two triangular areas **14** and **15** for permanently securing them together in folded position to form a part of the fuselage of the completed airplane.

The fold line **7** acts as a connection between the fuselage portion **14** of the blank *b*, with a wing portion **16** of the blank, see FIG. 2. In like manner the fold line **8** acts as a connection between the fuselage portion **15** with a wing portion **17**. The two fold lines **7** and **8** will coincide with each other and the common plane of the two wings will extend at right angles to the plane formed by the two triangular portions **14** and **15** when they are brought together in confronting relation. Two tail sections **18** and **19** on the blank B, also extend from the fold lines **7** and **8** and these tail sections may be shaped to resemble the tail of a bird. Also the wing portions **16** and **17** may be cut to resemble the wings of a bird with trailing feathers.

The blank C is now removed from the sheet A, and is folded and glued together as a unit forming a V-shaped trough to receive the fuselage before the blank C is applied to the fuselage and to the undersides of the wings **16** and **17**, see the perspective view of the partially folded blank in FIG. 4. In folding the blank C, the first fold is made along the dash line **25** and then the confronting areas of the portions **21** and **21***a* that are disposed adjacent to the fold line are glued together. Next a fold is made along the dash line **27** and the adjacent confronting areas of the portions **22** and **22***a* to this dash line are glued together. This is followed by folding along the dash line **26** and gluing together the confronting areas of the portions **21***a* and **21***b*. It will be noted that both surfaces or areas of the portion **21***a* have adhesive applied thereto.

In like manner a fold is made along dash line **28** and the confronting areas of the portions **22***a* and **22***b* are glued together. Then a fold is made along the center dash line **20** to form the two triple thick walls into a V-shaped trough that can receive the fuselage made up from the two triangular sections **14** and **15**. The rounded front edge **23** of the combined portions **21** and **22** of the blank C is the same as the rounded front edge **24** of the combined triangular portions **14** and **15** of the blank B, and the two rounded edges **23** and **24** are brought into alignment with each other. Before the area **21** of the blank C covers a portion of the triangular area **14** of the blank B, a weighted strip of metal E, see FIG. 6, of a slightly smaller size than the rectangular opening **10**, is placed in the opening and will bear against the adjacent area of the triangular portion **15**. The adhesive on this portion will hold the metal strip in place and now the area **21** of the blank C can cover the strip and hide it. The fold-indicating dash lines **25**, **26**, **27** and **28** on the blank C, in FIG. 2, are inclined at various angles to the central dash line **20**, and all have a common center which coincides with the center for the dash lines **7** and **8** on the blank B, when the folded blank C is applied to the folded blank B. The purpose of this is to provide a fuselage which will be tapered from the front of the airplane to the rear, see FIG. 1.

The folded blank C, not only gives the fuselage added thickness and body to that portion underlying the wings **16** and **17**, but it also has tab portions **29** and **30** that are contiguous with their adjacent portions **21***b* and **22***b*, respectively, and are designed to be folded along dash lines **31** and **32**, respectively, see FIGS. 2 and 4. The tab portions **29** and **30** underlie the wings **16** and **17**, see FIG. 5, and are secured thereto by adhesive. These tabs will reinforce the wings at their line of connection with the fuselage.

I will now describe the blank D, see FIGS. 1, 2 and 3, and how it is secured to the tops of the wings **16** and **17** to complete the structure of the airplane. In FIG. 2 the blank D is shown provided with wing portions **33** and **34**, and with a projection **35** that can be folded along the dash line **36**. The projection **35** has a rectangularly-shaped die cut **37** that extends transverse to a median line that bisects the two wing portions **33** and **34**. The rectangular die-cut **37** has uncut spaces **38** that holds the portion **39** in place within the projection **35** until it is manually pushed out. The die portion for the rectangular cut **37** could cut the opening **37** in the blank D, if desired. The leading edge **33***a* for the wing portion **33** of the blank D is shaped to coincide with the leading edge **16***a* of the wing portion **16** of the blank B, and likewise the leading edge **34***a* for the wing portion **34** of the blank D, is shaped to coincide with the leading edge **17***a* of the wing portion **17**, when the blank D is placed over the blank B, as illustrated in FIG. 1.

Before this is done, the projection **35** is folded along the dash line **36** so as to be swung into a position underlying the blank D, and the bottom plan view of the blank is shown in FIG. 3 with the projection **35** in folded position. A second weighted metal strip E′ is inserted in the

rectangular opening **37**. FIG. 1 illustrates the blank D applied to the top of the wings **16** and **17** with the projection **35** being folded under the blank so as to be covered thereby. The projection **35** will extend equal distances over both wings **16** and **17** and so will likewise the rectangular weighted metal strip E′. Adhesive is used for securing the blank D to the wings **16** and **17**. The plane of the metal strip E′ extends at right angles to the plane of the metal strip E, and their relative positions in the completed airplane is indicated in FIG. 1.

The airplane is made to resemble a bird and to glide like one when propelled from the hand. The two weights E and E′ will give strength and rigidity to the fuselage and wings at the center of gravity for the airplane. FIG. 4 shows how the blank C is folded before being applied to the blank B, and FIG. 5 shows a bottom plan view of the finished airplane and shows the blank C applied to the fuselage of the blank B, and the tabs **29** and **30** glued to the underside of the wings **16** and **17**, respectively. The confronting surfaces of the portions **21***b* and **22***b* are glued to the adjacent surfaces of the fuselage of the blank B. The blank C in its folded form provides a single V-fold that supports the fuselage of the blank B. The single V-fold is stronger, has fewer open areas susceptible to damage and presents a clean and aesthetically pleasing line.

I claim:

1. A model airplane formed from sheet material and comprising:

(a) a first blank having wings and a fuselage, said wings and fuselage lying in nonparallel planes;

(b) a second blank having wing portions adapted to be secured to the tops of the wings of said first blank, said second blank having an opening for receiving a metal strip; and

(c) bendable means for maintaining said wings at selected dihedral angles, said means comprising an elongated metal strip carried by said second blank and being received in said opening and having its midpoint lying in the plane of the fuselage so that the ends of the strip extend toward the ends of the wings of said first blank and lie in the planes of these wings, said strip being bendable at its midpoint for forming said dihedral angles, the sides of which coincide with the planes of the wings.

2. The combination as set forth in claim **1**, and in which:

(a) a third blank has portions that when folded form a V-fold that receives and lies adjacent to the fuselage of the first blank for strengthening and adding body thereto, the third blank also having tabs that are secured to the underside of said wings for aiding in supporting them.

3. The combination as set forth in claim **1**, and in which:

(a) the fuselage of said first blank has an opening for receiving a second elongated metal strip that extends in the direction of the length of the fuselage and at substantial right angles to the plane of the first-mentioned metal strip, both strips being positioned near the center of gravity of the airplane with the first metal strip being positioned above and extending across a portion of said second metal strip.

4. The combination as set forth in claim **3**, and in which:

(a) a third blank has portions that when folded form a V-fold that snugly receives the fuselage of the first blank and covers said second metal strip.

5. The combination as set forth in claim **1**, and in which:

(a) said second blank has a projection integral therewith and positioned at the juncture of said wing portions, the projection having the opening for receiving said metal strip, said opening being of the same size and shape as the metal strip and the projection

being foldable under said wing portions so as to be covered thereby and positioning said strip between the wings of said first blank and the wing portions of said second blank so that the midportion of the metal strip overlies the fuselage of said first blank; the thickness of said metal strip being substantially equal to the thickness of said projection.

6. A model airplane formed from sheet material and comprising:

(a) a first blank having wings and a fuselage, said wings and fuselage lying in nonparallel planes with an opening in a part of the fuselage underlying the wings;

(b) a first metal strip mounted in the opening and secured to the fuselage so as to extend in the direction of the length of said fuselage;

(c) a second blank having wing portions with a foldable projection positioned at the juncture of said wing portions and having an opening for receiving a second metal strip;

(d) a second metal strip of a size and shape to be mounted in the opening in said projection and disposed between said wing portions of said second blank and the wings of said first blank when said projection is folded under said wing portions and said second blank is placed on top of said wings of said first blank and is secured thereto; and

(e) a third blank including means for forming, when folded, a V-portion for snugly receiving and reinforcing the fuselage and covering said first metal strip, both of said metal strips being disposed near the center of gravity of the airplane.

7. The combination as set forth in claim 6, and in which:

(a) said second metal strip has its midpoint lying in the plane of the fuselage so that the ends of the strip extend toward the ends of said wings of said first blank and lie in the planes of these wings, said second strip being bendable at its midpoint for forming a dihedral angle, the sides of which coincide with the planes of said wings, the second strip maintaining the wings at the same dihedral angle as that of the second metal strip.

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F. BARRY SHAY, Primary Examiner