Feb. 6, 1973 J. E. LIVINGSTON 3,714,734

TOY AIRCRAFT

Filed March 1, 1972 2 Sheets-Sheet 1

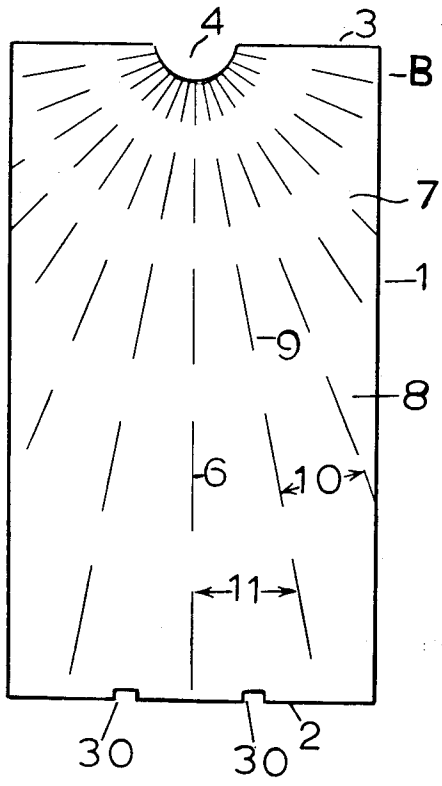


Fig. 1

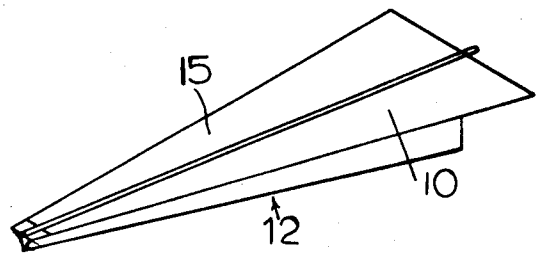


Fig. 2

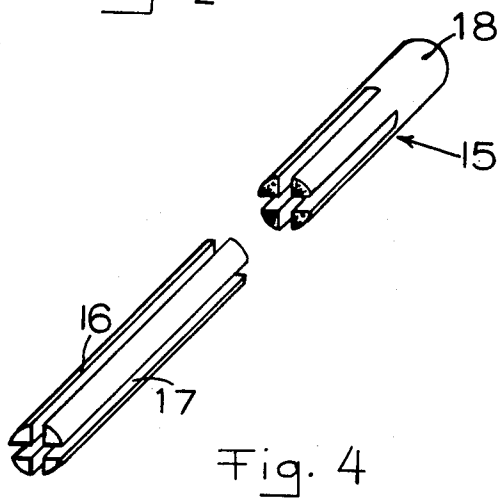


Fig. 4

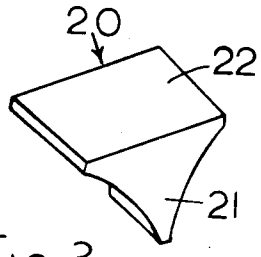


Fig. 3

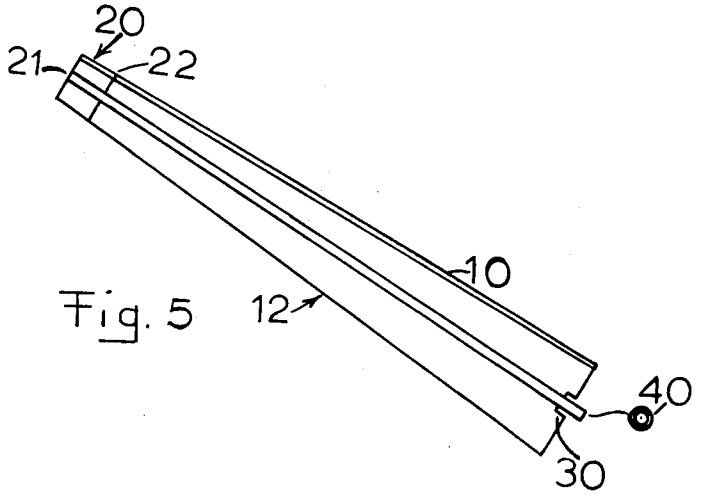


Fig. 5

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TOY AIRCRAFT

Filed March 1, 1972 2 Sheets-Sheet 2

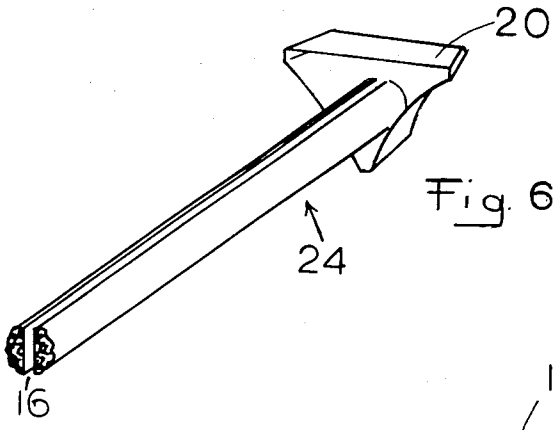


Fig. 6

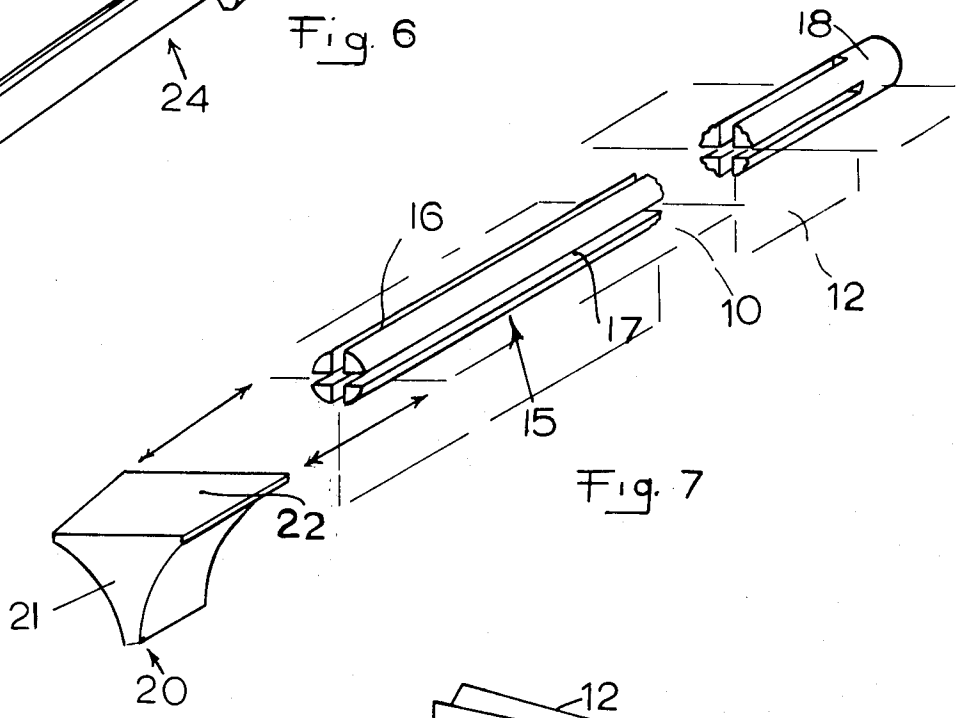


Fig. 7

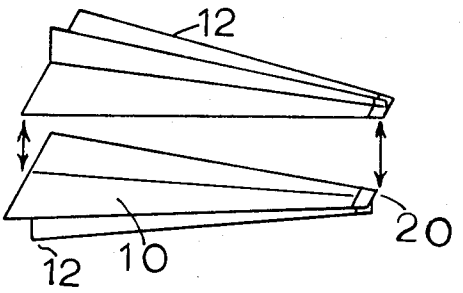


Fig. 8

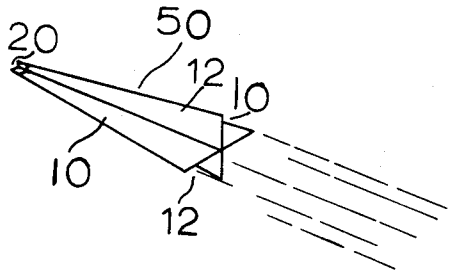
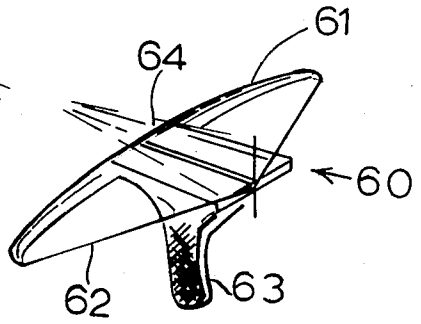


Fig. 9



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3,714,734

TOY AIRCRAFT

John Edwin Livingston, 502 Camp St., New Albany, Ind. 47150

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Int. Cl. A63h 27/00
U.S. Cl. 46—76 R 8 Claims

ABSTRACT OF THE DISCLOSURE

Discloses a toy aircraft formed by folding a blank of stiff sheet material into a configuration having a vertically disposed keel and horizontally disposed and tapered wing portions. An elongated clamping and stabilizing member consisting of a bar having an elongated slot and fitted over the walls of the keel portion clamp same together and maintain the keel in vertical disposition while in flight. In one embodiment, two folded members are produced from two blanks of stiff sheet material and these are clamped into abutting and congruent relationship so as to produce a finned missile. This is accomplished through the use again of an elongated clamping and stabilizing member.

FIELD OF THE INVENTION

This invention relates to toys and more specifically, to the manufacture of a folded type of aircraft. More specifically, this invention relates to a clamping and stabilizing member for a folded type aircraft and in one embodiment, relates to the combination of the clamping and stabilizing member used to join two folded type aircraft into abutting relationship to produce a finned missile.

DESCRIPTION OF THE PRIOR ART

Folded airplanes have been produced by children for many years and normally have been made of paper. One of the earliest known printed descriptions of such an airplane is shown by Moorhead in U.S. Pat. 865,419 (1907). Generally, such airplanes have been limited to use for a short period of time due to the bending and pulling apart of the folded member so that the lifting surface afforded by the wings is seriously minimized and so that the plane loses its stability and flounders helplessly in the air and falls to the ground. Various reinforcing means have been suggested as, for example, by Baehr, U.S. 1,420,805 and by Bonnell in U.S. Pat. 2,154,487. While these disclosures have suggested worthwhile improvements, for one or another reason, they have not been universally adopted.

SUMMARY OF THE INVENTION

According to the present invention, a blank of stiff sheet material is provided which contains a series of fold lines. A commercially available material is a heavy grade of plastic, utilized as a memorandum cover. The relatively stiff sheet of material is folded to form a double walled keel portion and a multiwalled horizontally disposed wing portion. The keel portion is held in engagement by means of an elongated clamping and stabilizing member consisting essentially of a slotted elongated rod or bar. Since the bar or slotted rod runs essentially the entire length of the vertically disposed keel, the double walls of the keel are held in clamping engagement and the keel is vertically maintained while the plane is in flight to stabilize same. By utilizing an elongated rod containing two slots located at 90°, relative to each other to form a quartered member, it is possible to place two folded planes or modules in abutting and congruent relationship and clamp same together through the use of the quartered clamping and stabilizing member. Further, since the end of the slotted bar extends to the end of the vertical keel, it is possible

to use a propelling means to propel the plane or finned missile by means other than by throwing.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a blank of material containing fold lines for folding a toy aircraft.

FIG. 2 is an illustration of the assembled folded aircraft containing a stabilizing bar and clamping member and a separate nose clip.

FIG. 3 is an enlarged perspective view of one embodiment of the nose clip.

FIG. 4 is an enlarged perspective view with portions broken away of one embodiment of the stabilizing and clamping member of this invention.

FIG. 5 is a side elevational view, illustrating another form of the stabilizing and clamping member of this invention and its relation to the folded toy aircraft.

FIG. 6 is a perspective view illustrating another embodiment of the nose clip and stabilizing and clamping member as a single unitary structure.

FIG. 7 is an exploded view of the nose clip of FIG. 3 and the stabilizing and clamping member of FIG. 4 illustrating in phantom lines the relation of these members to the folded aircraft.

FIG. 8 illustrates the method of clamping two folded aircrafts into abutting relation to form a single unitary finned missile.

FIG. 9 illustrates the propelling device for propelling the finned missile produced according to the method illustrated in FIG. 8.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, the blank from which the folded aircraft is made is denoted by B. This blank is generally rectangular in shape and consists of two side portions **1**, and end portion **2**, and a front portion **3**. The front portion contains a centrally located semicircular cutout part **4**. The rectangular sheet material B is relatively stiff and may be made of a form of cellophane or relatively heavy gauge plastic such as finds wide use as protective covers for manuscripts. As is illustrated, the blank contains a series of fold lines, starting with center fold line **6** and a series of diverging fold lines **7**, **8** and **9**. After the blank is folded, longitudinally and medially along center fold line **6**, the corners are folded along line **7** so that the edge **1** of the blank lies adjacent to the rear of fold lines **6**. Thereafter, the remaining folded portion is folded back along fold line **8** and the folded blank is then folded along fold line **9** at 90° to form the wing portion **10**. It will be noted that the area between fold line **6** and **9**—designated by numeral **11**, forms each wall of the vertically disposed keel **12**. The folded aircraft consists of a vertically disposed keel, **12** and two projecting wing portions **10**, projecting at about 90° from the keel. A slotted stabilizing and clamping member **15** is fitted over the walls **11** of the keel **12** to hold same in position and a nose clip **20** is fitted over the front end of the keel to form a blunt face **21**. It will be noted that due to the cut out portion **4** of the blank that when the aircraft is in folded condition, the aircraft does not taper to a point but tapers to a blunt cutoff portion. The nose clip with the projecting flange **22**, fitting back over the top front portions of the wings **10** and the blunt face portion **21** prevent the toy aircraft from having a pointed surface, which may injure a child.

In the embodiment shown in FIG. 5, a modified stabilizing and clamping member is illustrated in which the nose clip **20** and the elongated bar are molded into a single unitary structure **24**. Further, the stabilizing and clamping member contains only one axially disposed slot **16** which fits along the midpart of the keel **12**. I have

found that this placement offers the best stability for the plane—presumably by changing the gravitational forces to such an extent that the keel **12** is always vertically maintained. It will be noted, further, that at the rear of the keel portion **12** is provided a notch **30** so that an elastic member such as O-ring **40** may be fitted over the projecting pieces of the slotted bar **15**.

The stabilizing and clamping member **15**, illustrated in FIGS. 4 and 7 are for a special purpose of clamping together two folded aircraft. As will now be noted in FIG. 8, the wing portions **10** of identical aircraft are placed in congruent and abutting relationship and the clamping and stabilizing member **15** containing a first axially disposed slot **16** and a second axially disposed slot **17**, located at 90° from the first slot is fitted so that slot **16** clamp the walls **11** of the two keel portions **12** into engagement and the slots **17** clamp the abutting faces of the wing portions **10** of the two aircraft together to form a single unitary finned missile **50** such as is illustrated in FIG. 9. It will be noted in FIG. 9 that the unslotted portion **18** of the clamping and stabilizing member **15** acts as an engagement surface for the bow string **62** of bow **61** which serves as a propelling device for the finned missile **50**. In the embodiment shown, the handle **63** of the propelling device is connected to a body portion containing a guiding groove **64** into which the keel **12** fits, thus allowing the bow string **62** to project the finned missile **50** in the air.

It will be appreciated that I have disclosed a novel and economical toy which will allow hours of enjoyment for young children. The foregoing description is meant to be illustrative in nature and non-limiting in scope, except so as to be commensurate in scope with the appended claims.

I claim:

1. A toy aircraft comprising:

(A) a blank of stiff sheet material including fold lines,

(1) said blank being folded medially and longitudinally to provide a vertically disposed elongated keel portion having two walls,

(2) said blank being further folded along diverging fold lines to provide horizontally disposed wing portions tapering toward the nose of said aircraft.

(B) the combination therewith of an elongated stabilizing and clamping member comprising:

a long bar having a first axially disposed slot, said slot of said bar being fitted over the two walls of said vertically disposed keel portion for clamping said walls together and for stabilizing said aircraft while in flight by gravitationally maintaining said keel portion in vertical disposition.

2. A toy aircraft, as defined in claim **1** in which:

said blank of stiff sheet material has a semicircular cutout portion at the front so as to eliminate the point of the nose of said craft when said blank is folded to form the keel and wing portion.

3. A toy aircraft, as defined in claim **2**, the further combination therewith of a nose clip for fitting over the cutoff nose portion of said keel so as to provide a blunt faced nose portion.

4. A toy aircraft, as defined in claim **3**, in which said nose clip contains an upper flange projecting rearwardly to fit over the front end of the wing portion of said aircraft.

5. A toy aircraft, as defined in claim **1**, in which one end of said bar does not contain a slot and serves as an engagement surface for a propelling device.

6. A toy aircraft, as defined in claim **3**, in which said nose clip and said elongated bar form a single integral member.

7. A toy aircraft, as defined in claim **1**, the further improvement in said elongated bar of a second longitudinally disposed slot located 90° relative to said first slot for engaging the wings and keel portion of said aircraft and the wings and keel portion of a second aircraft so that the upper surface of the wings of said second aircraft are clamped into abutting relation with the upper surface of the wings of the other aircraft to form a unitary finned missile.

8. A process for making a toy aircraft in the form of a finned missile which comprises the steps of:

(A) forming a first and second folded member, each folded member having a keel portion and projecting winged portions and each member being formed by the following steps:

(1) folding a sheet of blank material longitudinally and medially along its longitudinal center line to form a keel portion,

(2) folding said blank further along a series of lines diverging from the front of said blank to produce two folded wing portions projecting at 90° of said keel portion.

(B) placing the upper surface of said projecting wing portion of said first folded member into abutting and congruent relationship with the upper surface of said second folded member and,

(C) clamping said first and second members into fixed abutting relationship through the use of an elongated clamping and stabilizing member.

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LOUIS G. MANCENE, Primary Examiner

R. F. CUTTING, Assistant Examiner

U.S. Cl. X.R.

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