Feb. 24, 1942. A. B. MULL 2,274,208

TOY AIRPLANE

Filed Feb. 6, 1941 2 Sheets-Sheet 1

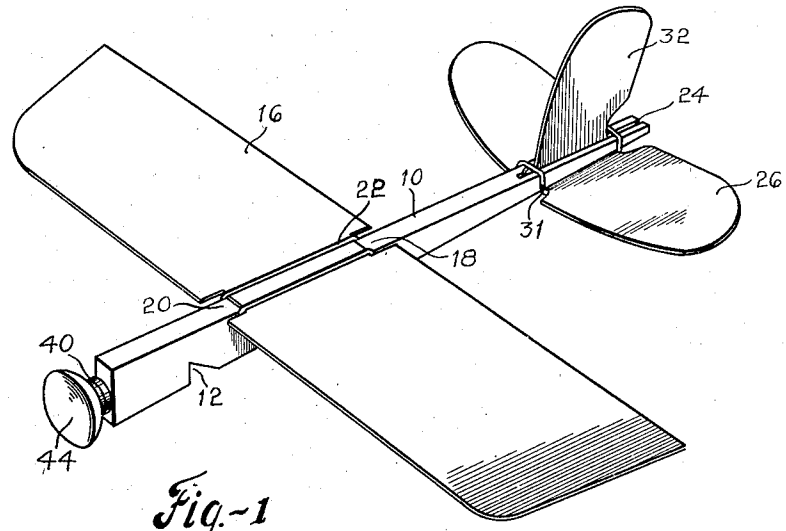


Fig.-1

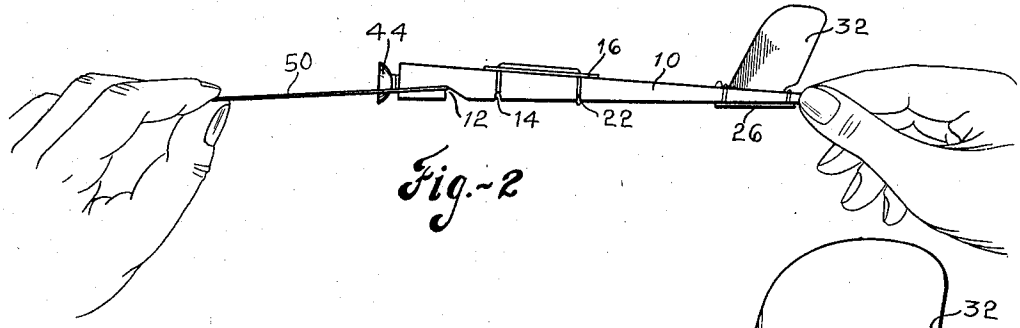


Fig.-2

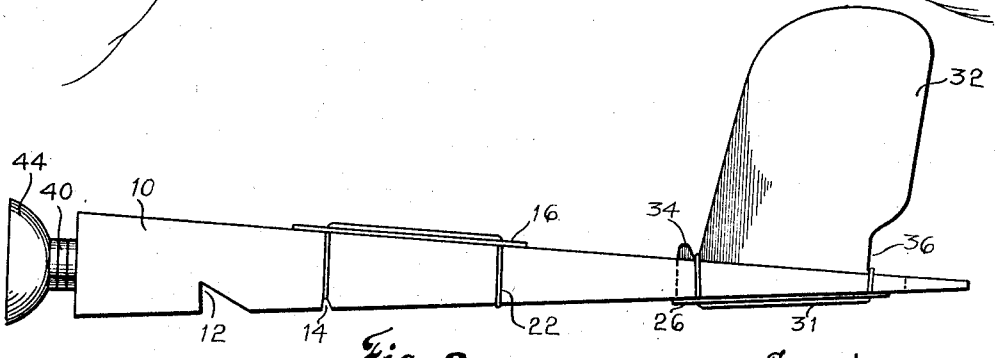


Fig.-3

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TOY AIRPLANE

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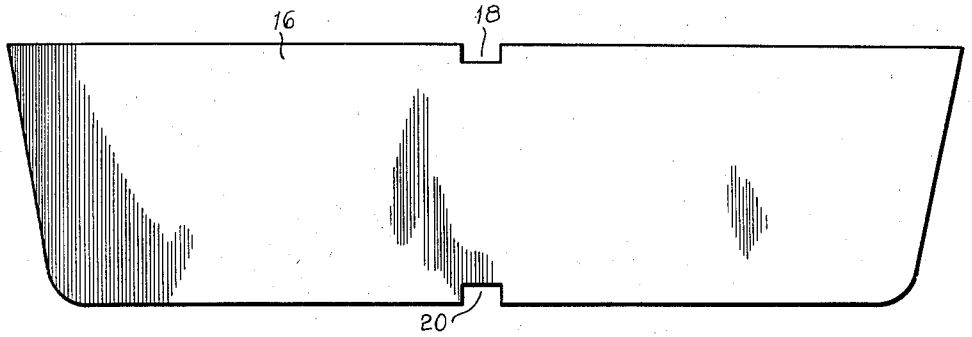


Fig.-4

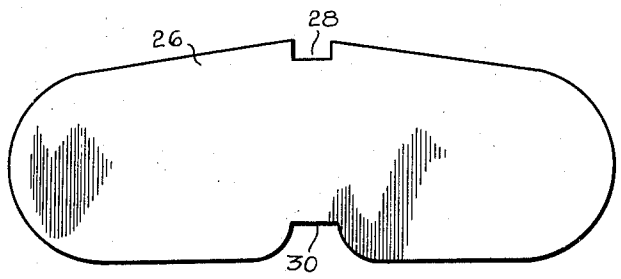


Fig.-5

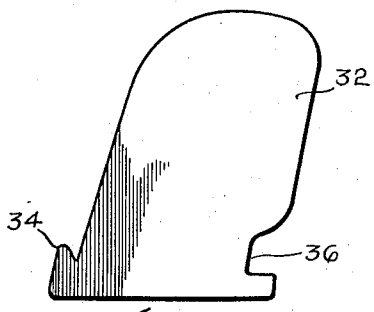


Fig.-6

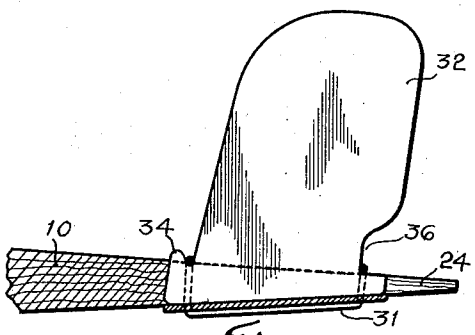


Fig.-7

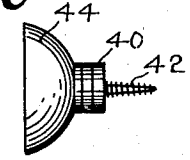


Fig.-8

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UNITED STATES PATENT OFFICE

2,274,208

TOY AIRPLANE

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Application February 6, 1941, Serial No. 377,694

2 Claims. (Cl. 46—81)

This invention relates to toy airplane darts and more particularly to toy airplane darts that may be manually catapulted.

An object of this invention is to provide a toy airplane having the characteristic of a dart.

Another object of this invention is to provide a toy airplane simulating a dart made from light weight materials, so loaded or balanced that the nose of the airplane engages the target.

Another object of this invention is to provide a toy airplane simulating a dart that is easily produced, easily assembled and easily manipulated without the use of expensive and intricate parts.

Another object of this invention is to provide a rudder projecting through a slot in the tail of the main body portion and supported upon the elevators underlying the main body portion.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation, as will become more apparent from the following description.

In the drawings, Figure 1 is a perspective view of the toy airplane dart.

Figure 2 is a reduced perspective view of the toy airplane dart shown in Figure 1 held in readiness for flight.

Figure 3 is an enlarged side elevational view.

Figure 4 is a top plan view of a unitary piece forming the wings.

Figure 5 is a top plan view of a unitary piece forming the elevator.

Figure 6 is a side elevational view of the piece that forms the rudder.

Figure 7 is a longitudinal cross sectional view taken near the center of the body, so as to show the relative position of the rudder resting upon the unitary piece forming the elevator.

Figure 8 discloses a side elevational view of the suction cup attachable to the end of the main body of the toy airplane dart.

The toy airplane disclosed herein simulates a dart that includes a tapering main body portion having a pair of transversely disposed notches on the under side thereof, one for use in catapulting the airplane, another for receiving a rubber band holding the wings in position. The rear end of the tapering body portion is provided with a vertical saw-cut slot receiving a rudder provided with a pair of ears seated in the slot and held in position by means of a rubber band straddling a unitary member forming the elevators, to hold the same in position. The forward end or the nose of the main body portion supports a suitable weight held in position by a screw projecting into the forward end of the main body portion and having the head thereof united to a rubber suction cup.

As this toy airplane is catapulted, the direction of flight is controlled by the relative angular position of the wings with respect to the elevators and the proper positioning of the weight attached to the nose of the main body portion. The elevators are attached to the under side of the main body portion and the wings are attached to the top thereof. The angle of incidence of the wings is controlled by the degree of taper of the main body portion. Thus, by selecting the proper taper for the main body portion, the proper relative angular relation between the wings and the elevators is hereby obtained, as will appear more fully from the detailed description that follows.

Referring to the drawings, the reference character **10** indicates the main body portion or fuselage of the airplane. This is provided with a transversely disposed catapulting V-shaped notch **12** in the under side thereof. The under side is also provided with a transversely disposed saw-cut notch **14**. The main body portion tapers from the nose to the rear end, where it forms a point. The unitary member forming the wings **16** is provided with a pair of notches **18** and **20** aligned with the main body portion **10**. These notches receive a rubber band **22** overlying the wing, so as to have the forward bight of the rubber band **22** positioned in the notch **14** and the rear bight surrounding the main body **10**. The rubber band **22** cooperates with the notches **18** and **20** to hold the unitary wing member **16** in proper position and parallel to the top of the main body **10**. This wing member **16** is positioned near the center of the main body **10**.

The rear end of the main body is provided with a vertical saw-cut groove **24** extending through the main body. The unitary member **26** forming the elevators is located beneath the groove **24** and is provided with a fore notch **28** and an aft notch **30**. A rudder **32**, provided with a forward ear **34** and a rear notch **36** is positioned in the groove **24**. A rubber band **31**, having the bights seated to the rear of the ear **34** and in the notch **36** of the rudder **32** and spanning the under side of the elevator the distance between the notches **28** and **30**, holds the elevators and the rudder in proper relation with respect to the main body portion. By this arrangement a very simple but efficient assembly is provided for holding the elevators in contact with the rudder in proper relation with respect to the tail of the main body

portion. The bottom of the rudder 32 rests on the elevator member 26.

In order to provide proper ballast, a pair of metallic washers 40, such as lead washers, is attached to the nose or forward end of the main body portion 10. Instead of a pair, one or more washers may be used. These washers 40 are held in position by a suitable screw 42, having the head embedded in a flexible vacuum cup 44. The vacuum cup is fastened to the head of the screw in a manner well known to those skilled in the art. The vacuum cup functions as a retaining member for holding the airplane in the position in which it alights whenever the vacuum cup contacts a sufficiently smooth surface substantially normal to the direction of flight. The neck of the vacuum cup member 44 is sufficiently flexible so as to bend or flex when the airplane dart hits a smooth surface at an angle. By this arrangement, the airplane will adhere to a flat surface disposed at an angle to the direction of flight.

By the use of a tapered body portion 10, tapering from the nose into substantially a point at the tail, it is possible to attach the wings to the top of the body portion and the elevators to the bottom, thereby providing an angular relation between the wings and the elevators, such that the weight of the airplane in flight is carried primarily by the wings, the elevators being so positioned that these balance the downward pull caused by the weights attached to the nose of the airplane. By this arrangement, the airplane will travel forward in a substantially straight horizontal path for a considerable distance. The rudder tends to stabilize the airplane, so as to prevent the airplane from orientation in flight while advancing.

As clearly shown in Figure 2, the toy airplane may be catapulted by the use of a rubber band 50 positioned in the V-notch 12, so that when the airplane is released, the rubber band projects the airplane forward, the wings, the elevators and the rudder cooperating with the weight to cause the nose of the airplane to always point in the direction of flight, so that as the airplane alights on a smooth surface normal to the direction of flight, the vacuum cup will hold the airplane in position. This provides a harmless toy that may be projected against a window pane or any other smooth surface where the airplane is held.

The notch 14 plays a very important part in the proper functioning of the airplane dart. When the airplane hits the target and comes to a sudden stop, the notch 14 cooperates with the rubber band 22 to hold the wings in proper position. Furthermore, the rubber band provides sufficient elasticity to permit the wings to advance slightly as the body of the toy airplane dart comes to rest. The notch retains the rubber band in position so as to snap the wings back to their proper location required for maintaining proper balance when the airplane is again launched.

Instead of catapulting the airplane by the use of the rubber band 50, any other suitable mode of launching the airplane may be used. It may be thrown manually or it may be thrown mechanically by any suitable device for catapulting the airplane dart.

This toy airplane dart is preferably shipped before assembly. Upon arrival the parts are readily assembled. It may be used indoors with safety. It has been designed to shoot straight. The airplane has a soft nose. This, together with the paper wings, adds to the safety feature. The wings, the elevators and the rudder tend to spring back into home position upon contact with an object. By moving the front wing assembly forward to the front slot and launching the airplane with a heavy rubber band, the airplane will perform different stunts when flown outdoors or in an extremely large room. The metallic washers are the driving force and play an important part in the successful operation of the airplane dart.

Although the preferred modification of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. In a toy airplane, the combination including a main body having a tail portion provided with a vertically disposed saw-cut groove, a unitary sheet material member underlying the tail of the main body so as to form a bottom for said groove, said unitary member being provided with fore and aft notches registering with the main body, a rudder seated in said groove, said rudder having fore and aft extensions located in the groove, a rubber band straddling the tail portion, said rubber band having one bight engaging the fore extension of the rudder, the main body of the band being positioned in the fore and aft notches and underlying said unitary member, and the rear bight extending over the aft extension of the rudder so that the rubber band holds the rudder and the unitary member in position on the tail of the main body, and a loaded suction cup attached to the nose of the airplane so that as the airplane alights upon a flat surface substantially normal to the direction of flight the suction cup holds the airplane in alighted position.

2. In a toy airplane assembly, the combination including a main body having a tail portion provided with a vertically disposed longitudinally extending saw-cut groove, a unitary elevator member underlying the tail portion so as to form a bottom for the groove, said unitary member extending from the sides of the main body so as to form a pair of elevators, said unitary member being provided with fore and aft notches registering with the main body, a rudder seated in the groove and resting on said unitary member, said rudder having fore and aft extensions seated in said groove, and a rubber band seated in the notches of said unitary member to hold said unitary member in alignment with the main body, the bights of said rubber band straddling the tail portion and engaging the fore and aft extensions of the rudder to hold it in position.

ARTHUR B. MULL.