United States Patent [19]

Stanzel

[11] **3,918,197**

[45] **Nov. 11, 1975**

[54] **TRIGGER-LAUNCHED JET PLANE**

[76] Inventor: **Victor Stanzel,** Schulenburg, Tex. 78956

[22] Filed: **Mar. 24, 1974**

[21] Appl. No.: **454,725**

Related U.S. Application Data

[63] Continuation of Ser. No. 298,475, Oct. 18, 1972, abandoned.

[52] **U.S. Cl.** **46/81**

[51] **Int. Cl.**[2] **A63H 27/14**

[58] **Field of Search** ..... 46/74 R, 74 B, 81; 124/26

[56] **References Cited**

UNITED STATES PATENTS

335,104	2/1886	Bager et al.	124/26
1,168,815	1/1916	Madison	124/26
1,367,559	2/1921	Nevkirchen	124/26
1,406,820	2/1922	Beiser	124/26
1,473,419	11/1923	Cudlipp	124/26
1,597,532	8/1926	Mentzer	46/81
1,631,006	5/1927	Brown	124/26
3,068,612	12/1962	Simpson	46/81
3,264,777	8/1966	McCreary, Jr.	46/81
D157,767	3/1950	Lindenbaum	46/81 X

FOREIGN PATENTS OR APPLICATIONS

937,876	1/1956	Germany	46/81
552,598	12/1956	Italy	46/74 B

Primary Examiner—Robert Peshock
Assistant Examiner—J. Q. Lever
Attorney, Agent, or Firm—Joe E. Edwards; W. Ronald Robins; Jack R. Springgate

[57] **ABSTRACT**

A toy jet airplane adapted for use with a trigger-actuated hand-held launching apparatus is provided. The airplane includes a nose portion of resilient shock-absorbing material and has a launching passageway extending longitudinally through the body and nose of the plane. The hand-held launching gun includes an elongated launching rod for insertion through the launching passageway of the airplane, a compression spring for resiliently urging the plane in the direction of launch, and a trigger for selectively launching the airplane. This abstract is not to be construed in any way to define or limit the invention set forth below.

9 Claims, 3 Drawing Figures

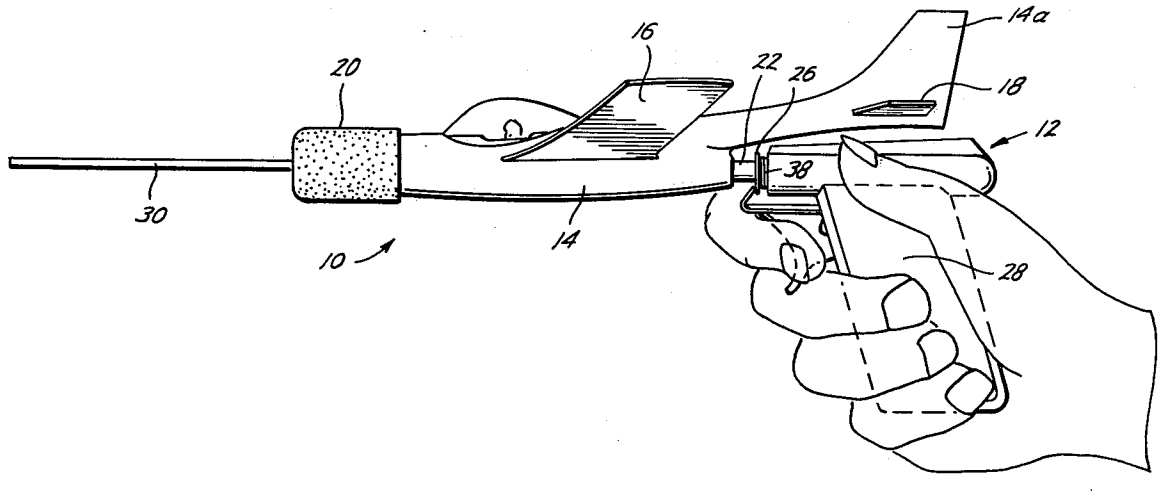
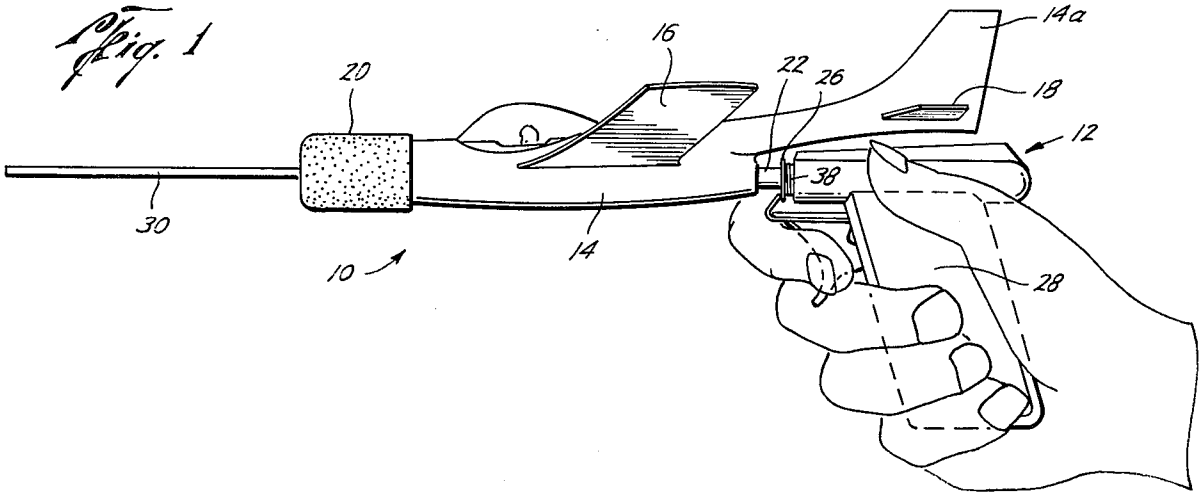


Fig. 1



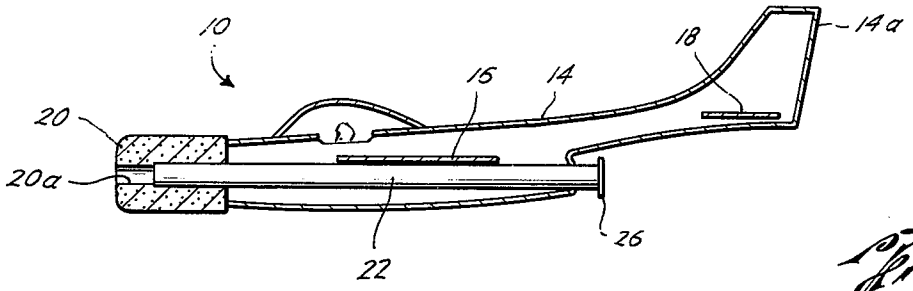


Fig. 2

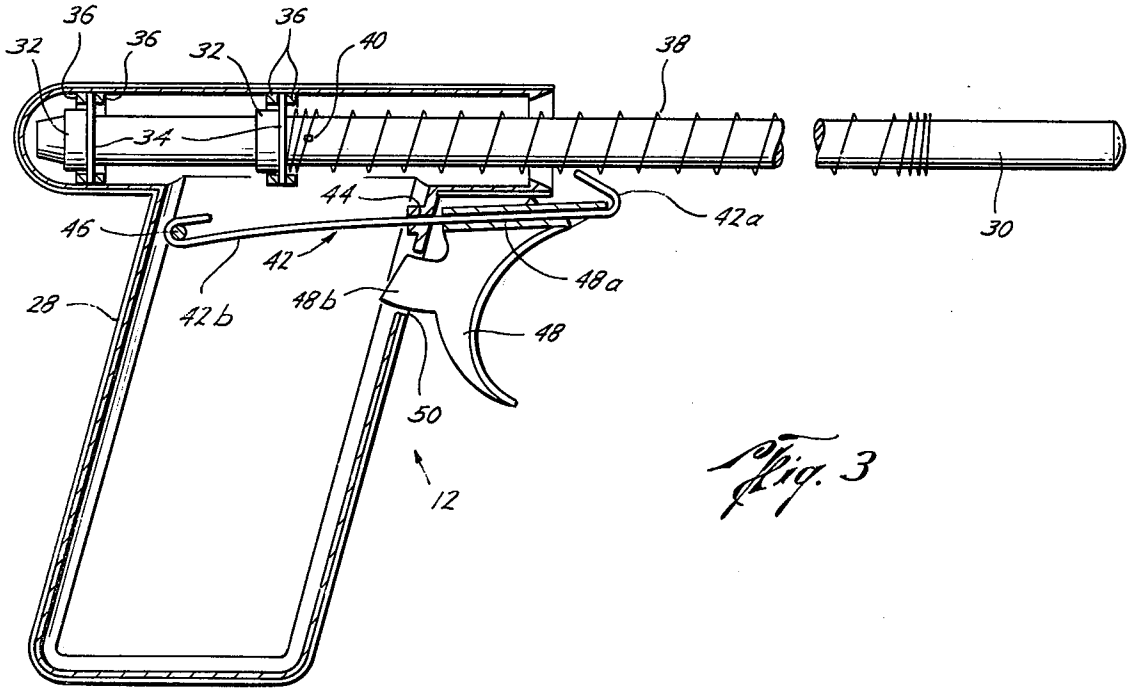


Fig. 3

TRIGGER-LAUNCHED JET PLANE

The present application is a continuatioin application of the prior co-pending application Ser. No. 298,475, filed Oct. 18, 1972 now abandoned.

The present invention relates to toy airplanes, and more particularly to a toy jet airplane adapted for use with a hand-held trigger-actuated launching apparatus. The manufacture of a ready-to-fly model or toy airplane, having an attractive and colorful appearance for sales appeal, and having rugged construction to withstand hard use in the hands of inexperienced flyers, results in a heavier airplane which has a weight factor, or wing-loading, too high for practical hand-launching because of the high-flying speed necessary to sustain its flight. Such a plane is therefore most advantageously used in conjunction with a launching device, or apparatus — most desirably a hand-held launcher.

It is therefore the primary object of the present invention to provide a novel toy airplane and launching apparatus therefor.

Another object is to provide such a plane and launching apparatus of rugged and durable construction formed of light-weight inexpensive materials.

A further object is to provide such a plane wherein the nose portion is formed of resilient shock-absorbing material to remove any danger incident to the plane's high launch velocity.

Another object is to provide such a plane for use with a spring-powered hand-launcher which includes an elongated launching rod for controlling the direction of the plane's flight.

These and other objects and advantages of the invention will be apparent from the drawings, specification and claims. In the accompanying drawing, which illustrates the preferred embodiment of the invention, and wherein like numerals indicate like parts:

FIG. **1** is a view in side elevation showing the toy airplane mounted on the launching apparatus in cocked position ready for launching;

FIG. **2** is a view in side elevation and in section of the airplane of FIG. **1,** showing details of the construction; and

FIG. **3** is a view in elevation of the launching apparatus with one side of the handle being removed to show details of the trigger mechanism and launching rod mounting.

Referring now to the drawing, there is shown a model or toy airplane **10** adapted for use with the launching apparatus **12.** The plane includes a body **14,** wings **16,** and tail **18.** The body **14** and upstanding or fin portion **14***a* of the tail are preferably formed integrally of hollow molded plastic. The wing and tail pieces **16** and **18** may be formed in the same mold as the body, but preferably are formed of cardboard, plastic, balsa wood, or the like, and inserted through slots in the body to assemble the plane. The nose **20** of the plane is formed of resilient shock-absorbing material such as polyurethane, or other plastic foam. A longitudinal passageway **20***a*, circular in cross-section, is provided through the nose **20** to permit the full mounting of the plane on the launch apparatus as shown in FIG. **1.** From the front, this passageway also simulates the air intake port of a jet engine. Forming the nose of the plane from resilient shock-absorbing material serves as a safety feature to protect persons and fragile objects from injury or damage by the plane, and also makes the plane far more durable by insulating it from damaging shocks.

Extending longitudinally through the plane from the lower rear portion of the body to the tip of nose **20** is a launching passageway defined by the body and nose of the airplane. In the preferred embodiment, this launching passageway is formed by launching tube **22** having a bore **24,** which tube may be inserted through the hollow body of the airplane and into the passageway **20***a* in the nose **20.** The tube **22** preferably ends short of the tip of the nose **20** so as not to restrict the resiliency and shock-absorbing capability of the nose. By providing a separate launching tube for insertion through the hollow body of the plane, a very durable construction is possible which at the same time is much lighter than if the plane body were formed of some solid material with a bore being cast or drilled through the body for insertion of the launching apparatus.

Latch means are provided on the airplane for coaction with the hand-launching apparatus as hereinafter explained. In the preferred embodiment, the latch means comprise an annular latch ring **26** which is mounted on the end of launching tube **22** distant from the airplane's nose. As shown in FIGS. **1** and **2,** the exposed end of launch tube **22** terminating in latch ring **26** simulates the appearance of an exhaust for a jet engine to complement the simulated air intake port of the nose of the airplane.

The trigger-actuated launching apparatus **12** for the plane includes a handle **28,** preferably molded of plastic in two mating halves to facilitate assembly. Handle **28** mounts an elongated launching rod **30** adapted to be slidably received within the bore **24** of the launching tube **22.** As shown in FIG. **3,** the launching rod may be securely mounted in the handle **28** by providing two annular members **32** which may be friction-fitted or glued around the launching rod **30.** The annular members **32** have flanges **34** adapted to be received within circular grooves formed by annular beads **36** cast in each half of the handle **28.** Thus, when the two halves of handle **28** are assembled and glued, or otherwise fastened together, the launching rod **30** is securely retained within the handle.

Disposed about the launching rod **30** is a launching spring **38** for resiliently urging the airplane in the direction of launch. As shown, the spring **38** is preferably of the loosely coiled type having a rather long distance of travel. It may be fastened to the launch rod, as by staple **40,** to prevent its displacement.

Retaining means are provided on the launching apparatus for engaging the latch ring **26** of the airplane to retain the airplane on the launch rod. As shown, these retaining means preferably comprise a retaining spring **42** formed from a single piece of wire bent into a tight "U" configuration at its middle. The forward or U end is bent back to form an acute angle with the two legs of the wire to form a catch **42***a* to engage the latch ring **26** of the airplane. The two legs **42***b* of the retaining spring extend back through a slot **44** in the handle **28,** and pass 180° around a retaining pin **46** mounted in handle **28.**

An actuating trigger **48** is provided having opposed longitudinal grooves **48***a* along each side for receiving the two legs **46***b* of retaining spring **42,** so that the trigger is retained therebetween. A guide **48***b* extends from the rear of the trigger through a slot **50** in the handle to guide the trigger as it is depressed and released.

In operation, the airplane **10** is grasped in one hand and the launcher **12** in the other, and the forward end of launching rod **30** is inserted into the bore **24** of launching tube **22,** emerging through the passageway **20***a* in the nose **20.** As the plane is moved onto the launching rod, the rear edge of latch ring **26** will engage the forward end of coil spring **38,** and the coil spring will be compressed. When the latch ring **26** contacts the forward, sloping edge of catch **42***a*, the catch will pivot downward permitting the latch ring to pass over it, and will snap up immediately in front of the latch ring **26** to place the plane and launcher in cocked position. This is the position shown in FIG. **1,** with the plane fully retracted onto the launching rod, and the coil spring **38** is compressed. Then, as the trigger **48** is depressed, it will pivot the catch **42***a* out of latching relationship with latch ring **26,** permitting the force of spring **38** to catapult the plane forward and into flight in the direction in which the launching rod **30** is pointed.

The foregoing disclosure and description of the invention are illustrative and explanatory thereof, and various changes in the size, shape and materials, as well as in the details of the illustrated construction, may be made within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. A toy airlane for use with a launching apparatus, said airplane comprising:

a body comprising a main portion, a nose at the forward end of said main portion, laterally extending wings projecting from the sides of said main portion, and a tail section extending rearwardly from said main portion;

said main body portion and nose defining a launching passageway open at both ends and extending from an opening at the forward end of said nose to an opening at the lower rear end of said main body portion and terminating short of said tail section,

said tail section being formed integrally with and extending rearwardly from the upper part of said main body portion and located in a horizontal plane above the lower rear end of said main body portion in which said launching passageway is located to thereby assure that the rear end of said launching passagway is accessible to a launching apparatus.

2. The toy airplane according to claim **1,** wherein said nose is formed of resilient shock-absorbing material and has a longitudinal passageway therethrough defining a portion of said launching passageway and wherein said airplane body is formed of hollow molded plastic and the portion of said launching passageway extending through said hollow body is defined by a tube extending from said lower rear end of said main body portion and into the longitudinal passageway in said nose.

3. The toy airplane according to claim **2,** wherein said tube terminates short of the forward end of said nose so as to not restrict the resiliency of said nose.

4. The toy airplane according to claim **2,** wherein said tube extends rearwardly of said lower rear portion of said main body and terminates in a latch ring adapted to coact with said launching apparatus.

5. A toy comprising an airplane and a hand-launching apparatus therefor,

said airplane comprising a body, nose, wings and a tail section,

said nose being formed of resilient shock-absorbing material and having a longitudinally extending bore therethrough,

said body including lower rear portion disposed below the juncture of said body and said tail section with said tail section being formed integrally with said body and disposed above and rearwardly of said lower rear portion of said body,

a cylindrical launching tube extending through an opening in said lower rear portion of said body and into the bore of said nose, the rear end of said launching tube terminating short of the rear end of said tail section and being located in a horizontal plane below said tail section so as to be accessible to said launching apparatus; and

latch means on said airplane for retaining said airplane on said launching apparatus;

said hand-launching apparatus for launching said toy airplane comprising,

a handle,

an elongated launching rod mounted in said handle and adapted to be slidably received within the bore of said launching tube,

a launching spring disposed about said launching rod for resiliently urging said airplane in the direction of launch,

retaining means on said handle including a catch for engaging said latch means on said airplane to retain said airplane on said launching rod with said spring in a compressed position, and

a trigger connected to said retaining means for selectively moving said catch out of engagement with said latch means to launch said airplane.

6. The toy of claim **5** wherein said handle of said launching apparatus includes a recess at the upper end thereof with said launching rod centered in said recess and said launching spring adapted to be substantially received within said recess when said airplane is retained on said launching rod.

7. The toy according to claim **6** wherein said handle of said launching apparatus is formed of molded plastic in two mating halves to facilitate assembly and wherein said launching rod is retained in said handle and centered in said recess by means of two annular members adapted to be disposed about said launching rod and seated in circular grooves disposed in each half of said handle.

8. An apparatus comprising a toy airplane and hand-held launching apparatus therefor,

said toy airplane comprising,

a plastic body of hollow molded construction including a main body portion and a tail section extending rearwardly from the upper part of said main body portion, with a lower rear portion of said main body being disposed below the juncture of said main body and said tail section,

said tail section including a vertical rudder formed integrally with said main body and tail section and a pair of horizontal tail pieces formed of a single member inserted through said hollow tail section,

a pair of wings formed of a single member inserted through said hollow body,

a nose formed of resilient shock-absorbing material attached to the forward end of said body and hav-

ing a longitudinal passageway therethrough simulating the air intake passage of a jet airplane,

a cylindrical launching tube extending longitudinally through the hollow body of said airplane from said lower rear portion of said main body and into the passageway in said nose.

said launching tube and said nose passageway defining a launching passageway extending longitudinally through said airplane from said nose to said lower rear portion of said main body, and

an annular latch ring on said launching tube on the end distant from said nose,

the rear end of said launching tube with said annular latch ring simulating the exhaust of a jet airplane; and

said launching apparatus for said toy airplane comprising,

a handle,

a launching rod mounted in said handle and adapted to be slidably received within said launching passageway of said aircraft,

a launching spring disposed about said launching rod for resiliently urging said aircraft in the direction of launch,

retaining means for engaging said annular latch ring on said aircraft for retaining said aircraft on said launching rod with said spring in a compressed position, and

a trigger associated with said retaining means for selectively releasing said retaining means to launch said airplane,

said launching passageway terminating short of the rear end of said tail section and being disposed substantially entirely in a horizontal plane below the plane of said tail section whereby the end of said launching passageway will be assessible to the launching rod of said launching apparatus and said tail section will be disposed substantially above the handle of said launching apparatus when said airplane is retained on said launching rod,

said aircraft being of such mass and air foil construction that when propelled forward by said launching apparatus it will glide as a true aircraft rather than as a ballistic projectile.

9. The apparatus according to claim **8,** wherein said trigger has longitudinally extending grooves along its sides for receiving said retaining means.

* * * * *