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3,430,620

MISSILE LAUNCHING TOY

Filed June 21, 1966

FIG. 1

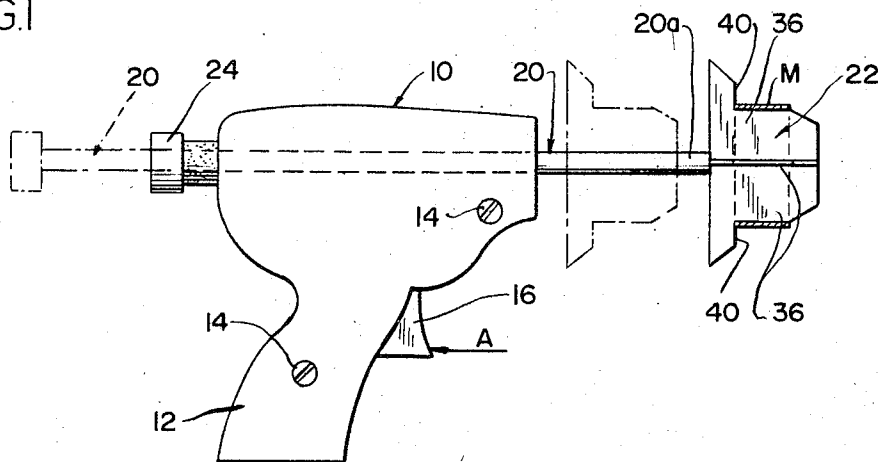


FIG. 2

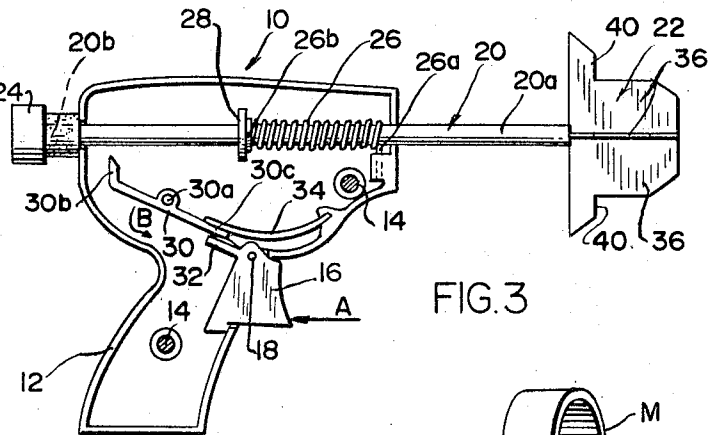
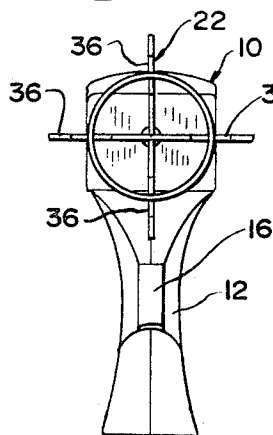


FIG. 3

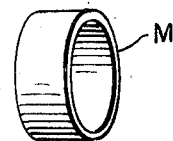


FIG. 5

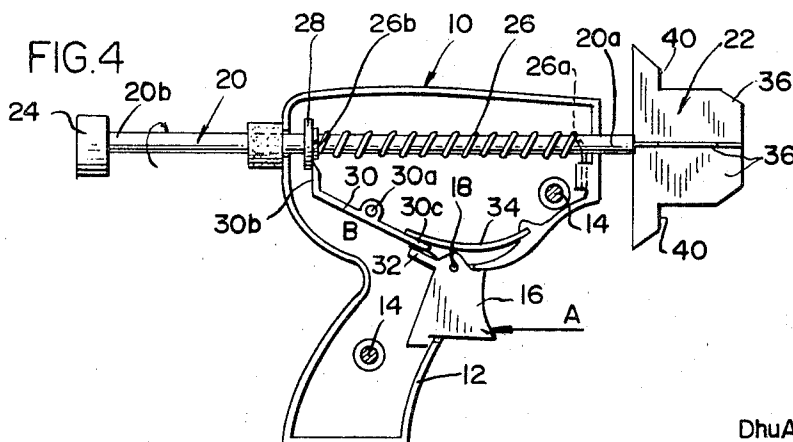


FIG. 4

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MISSILE LAUNCHING TOY

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2 Claims

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ABSTRACT OF THE DISCLOSURE

A missile launching toy which has a launching mechanism to which is imparted simultaneous rotational and rectilinear movement from a cocked to an extended position. The launching mechanism has a launching head on which a missile is mounted loosely such that the missile will be launched in a continuation of the simultaneous rotational and rectilinear movement of the head when the head reaches its extended position. The missile is formed of an open ended section of a relatively thin lightweight cylindrical body and is mounted on the launching head with the axis of the cylinder on line with the rectilinear movement of the launching head so that the missile spins about its axis as it is launched from the head.

This invention relates to a novel toy and particularly to a launching device simulating a space gun for imparting simultaneous rotational and rectilinear movement to a cylindrical missile.

The present invention is designed to simulate a space gun and is adapted to launch a harmless missile which simulates a hovering flying object. Briefly, the device includes a launching mechanism with a launching head. A casing for the device houses means for imparting simultaneous rotational and rectilinear movement to the launching head from a cocked to an extended position. Means are provided for retaining the launching head in its cocked position and selectively releasing the same by squeezing a trigger on the space gun for imparting simultaneous rotational and rectilinear movement to a light weight cylindrical body. This simultaneous movement of the launching head causes the cylindrical missile to spin about its axis with remarkable accuracy at surprising distances. The missile is preferably made of light weight material such as plastic to render the toy harmless.

Therefore, the principal object of this invention is to provide a new and novel missile launching toy.

A further object of this invention is to provide a safe toy which launches missiles with remarkable accuracy at a surprising distance, a feature which has heretofore been possible only with toys using dangerous hard missile bodies.

A further object of this invention is to provide a missile launching toy simulating a space gun to impart simultaneous rotational and rectilinear movement to a cylindrical light weight body to cause the body to spin about its axis.

Further objects, features and advantages will become apparent from the following detailed description taken in connection with the accompanying drawings, in which:

FIG. 1 is a side elevational view of the missile launching toy of this invention showing in phantom the launching rod and launching head in their cocked positions;

FIG. 2 is a front elevational view of the toy of FIG. 1;

FIG. 3 is a central sectional view taken through the housing of the toy illustrating the launching rod and launching head in their extended positions;

FIG. 4 is a sectional view similar to that of FIG. 3 illustrating the launching rod and launching head in their cocked positions; and

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FIG. 5 is a perspective view of the cylindrical missile which is launched by the toy of this invention.

The missile launching toy of the present invention includes a hollow housing generally indicated 10 having a pistol grip portion 12 depending downwardly therefrom. The housing is comprised of two mating halves secured together as by screws 14. A trigger means 16 is pivotally mounted in the housing 10 at point 18 adjacent the pistol grip 12 and has a portion thereof exposed exteriorly of the housing for squeezing. A launching rod indicated generally at 20 is mounted in the housing transverse to the pistol grip 12 and is journaled for simultaneous rotational movement relative to the housing and rectilinear movement from a cocked position (shown in phantom in FIG. 1, and shown in FIG. 4) to an extended launching position (shown in FIG. 3). The launching rod 20 has a forward portion 20a extending exteriorly of the housing and has a launching head indicated generally at 22 at the extreme outer end of rod portion 20a so that the rod 20 may be moved rectilinearly to a cocked position with the launching head 22 relatively near the housing as illustrated in FIG. 4. Preferably, the launching rod 20 extends completely through the housing so that its rear portion 20b is exposed for grasping and cocking. A cocking handle 24 may be positioned on the end of rod portion 20b.

A coil spring 26 surrounds the intermediate portion of rod 20 within the housing 10. The coil spring has one end 26a fixed to the housing and its other end 26b is fixed to a locking portion 28 of the launching rod 20. The locking portion may take the form of a washer 28 pinned to rod 20 which cooperates with a release mechanism (as hereinafter described). The spring 26 tends to resist both rotational and rectilinear movement of rod 20 and is the force for launching a missile M (FIG. 5).

A release mechanism is operatively associated with the launching rod 20 and the trigger 16 and includes the locking washer 28 on the launching rod 20. The release mechanism has a sear 30 pivotally mounted to the housing intermediate its ends at point 30a. The sear has one end 30b selectively engageable with the locking washer 28 of the launching rod 20 to maintain the rod in its cocked position as illustrated in FIG. 4. The other end 30c of the sear is engageable by a tongue portion 32 on the trigger 16 so that squeezing the trigger in the direction of arrow A causes the sear 30 to pivot about point 30a in the direction of arrow B to release the launching rod. A leaf spring 34 mounted in the housing bears against end 30c of the sear biasing the sear about pivot 30a opposite the direction of arrow B to urge the locking end 30b of the sear into engagement with the locking washer 28 on the launching rod 20 to retain the rod in its cocked position until the trigger is squeezed.

The missile launching head 22 includes a plurality of angularly spaced wings 36 extending radially outwardly from the launching rod 20 and are adapted to mount the missile M.

The missile itself is shown in perspective in FIG. 5 and is comprised of a section of a relatively thin light weight cylindrical body. A light weight plastic material has proven to be very effective. The missile is loosely positioned about the wings 36 of the launching head 22, as illustrated in FIG. 1, and abuts against shoulder portions 40 on each of the angularly spaced wings. As the launching head 22 rotates and moves rapidly from its cocked position (shown in FIG. 4) under the force of spring 26 toward its extended position shown in FIG. 3, the cylindrical missile spins about its axis as it is launched from the head 22. For a child's toy, the spinning motion provides remarkable accuracy at a surprising long range. The missile being made of light weight material is practically harmless.

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In operation, a child will grasp the cocking handle 24 at the rear end of the launching rod 20 and pull the rod until the locking washer 28 snaps behind end 30b of the sear 30. Simultaneously with pulling, the rod is rotated against the tension of fixed spring 26 until the spring is relatively taut (approximately one revolution of the rod). Leaf spring 34 urges the sear about pivot 30a and retains the same in locking engagement in front of the locking washer 28. The cylindrical missile M may be positioned onto the launching head 22 before or after cocking. The gun is now ready for launching and the trigger 16 may be squeezed in the direction of arrow A so that its tongue portion 32 moves about pivot 18 upwardly against the end 30c of the sear 30 rotating the sear in the direction of arrow B and releasing the launching rod 20 whereupon the spring 26 imparts simultaneous rotational and rectilinear movement to the launching rod 20 and its launching head 22. When the launching head reaches its extended position, the cylindrical missile M is launched in a continuation of the rotational and rectilinear movement of the launching head and spins rapidly about its axis.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail one embodiment of the invention, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

I claim:

1. A missile launching toy comprising, in combination: a casing for housing a launching mechanism which includes a launching head exposed exteriorly of the housing,

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means for imparting simultaneous rotational and rectilinear movement to said launching head to move said head from a cocked to an extended launching position, and means for retaining said launching head in its cocked position and selectively releasing the same for rotational and rectilinear movement to its extended launching position; and a missile loosely mounted on the launching head such that said missile will be launched in a continuation of the simultaneous rotational and rectilinear movement of said mounting head once said head reaches its extended position, said missile being comprised of an open ended section of a relatively thin light weight cylindrical body, said launching head loosely mounting said cylindrical missile with the axis of the cylinder being on line with the rectilinear movement of the launching head so that said missile spins about its axis as it is launched from said head.

2. The missile launching toy of claim 1 wherein said launching head includes a plurality of angularly spaced wings extending radially outwardly from said launching rod and being adapted to mount said cylindrical missile about the outer extremities of the wings.

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