

Nov. 28, 1961

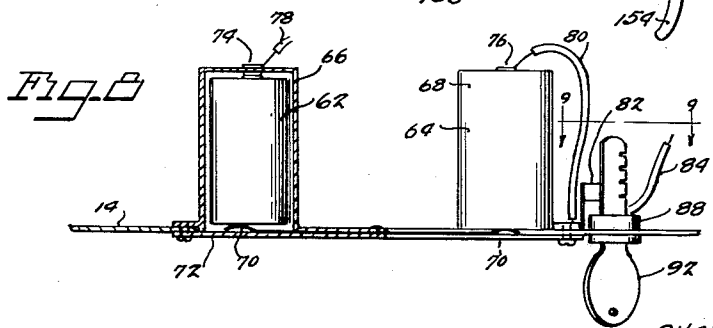
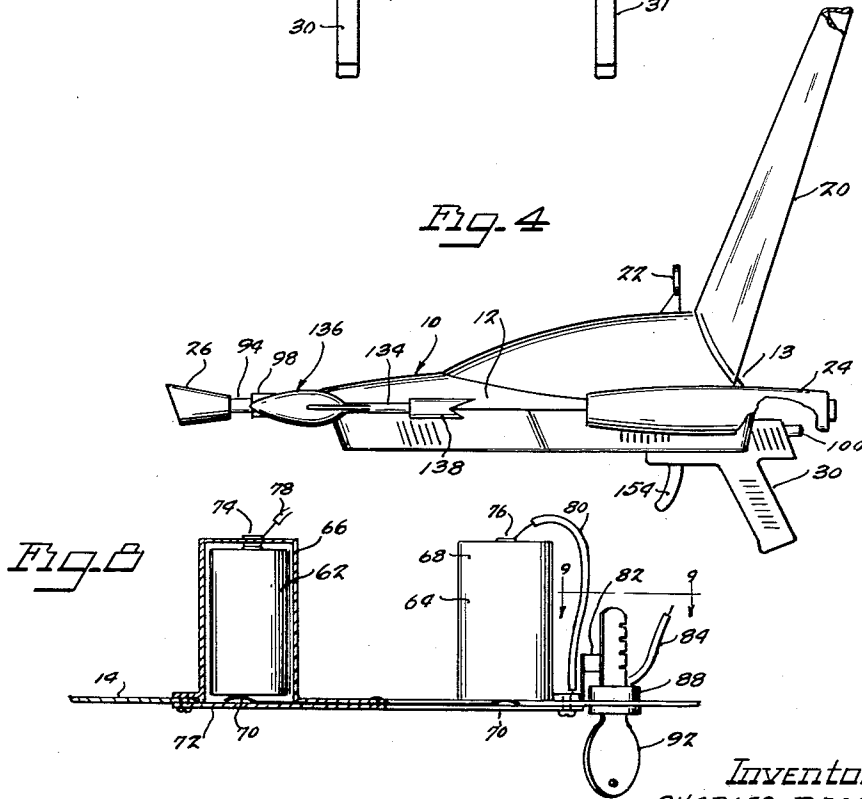
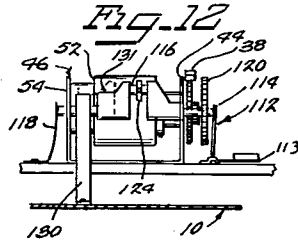
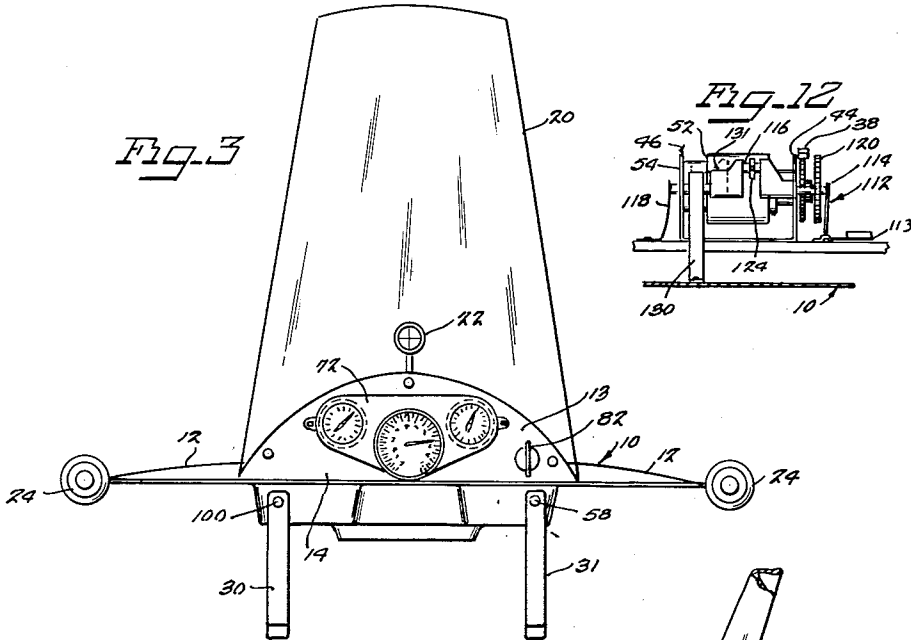
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3 Sheets-Sheet 2



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Fig. 5

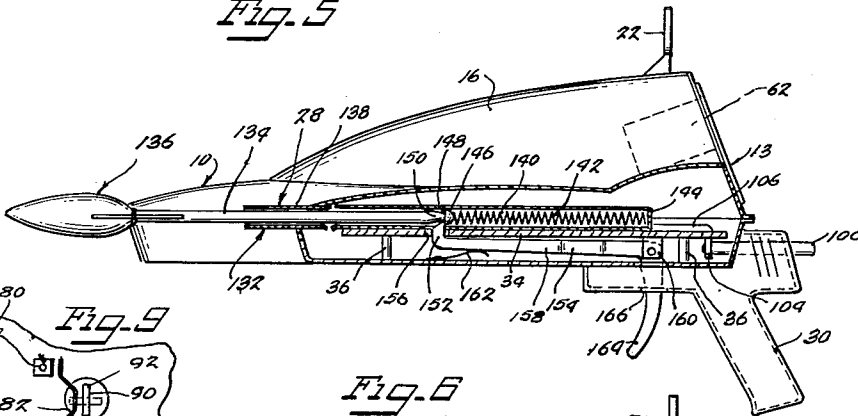


Fig. 6

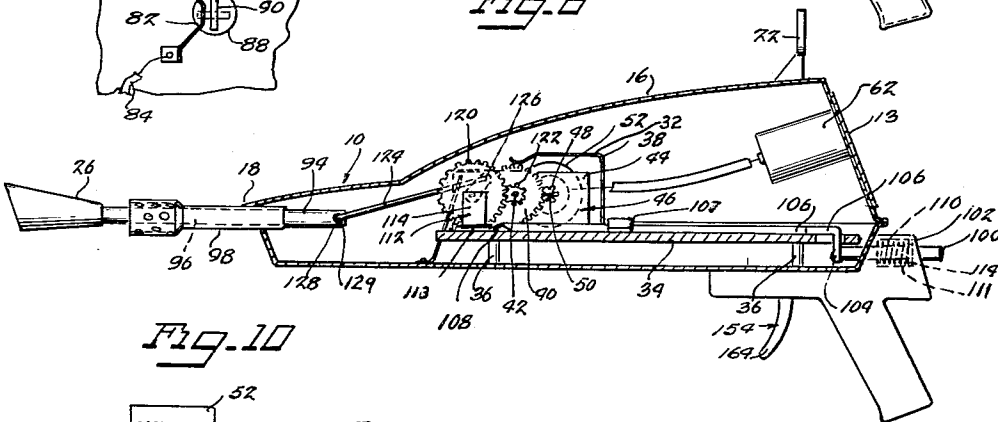


Fig. 7

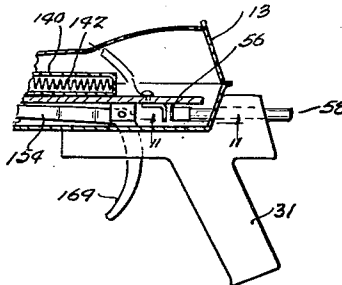


Fig. 10

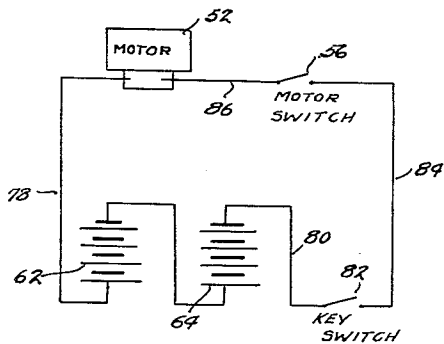
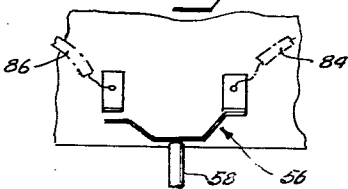


Fig. 11



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The present invention relates generally to a toy, and particularly to a toy which is operable to produce audible and visual effects at the command of the operator of the toy.

An object of the present invention is to provide a toy having an operating mechanism which selectively produces audible and visual effects. Another object is the provision of a toy jet plane which is adapted to be maneuvered by a child. Still another object is the provision of a toy having mechanism for selectively producing a noise, ejecting objects and reciprocating an external member. A further object of the invention is the provision of a toy of the type described which can be economically manufactured and which is durable in use.

Further objects and advantages of this invention will become apparent by reference to the following description and the accompanying drawings.

In the drawings:

FIGURE 1 is a plan view of a toy embodying various features of the invention;

FIGURE 2 is a plan view of the toy shown in FIGURE 1 with portions broken away to show the internal operating mechanism;

FIGURE 3 is an end view of the toy shown in FIGURE 1, looking at it from the rear end away from the operator of the toy;

FIGURE 4 is a side view of the toy shown in FIGURE 1;

FIGURE 5 is an enlarged, sectional view taken along line 5-5 of FIGURE 2;

FIGURE 6 is an enlarged, sectional view taken along line 6-6 of FIGURE 2;

FIGURE 7 is an enlarged, fragmentary sectional view taken along line 7-7 of FIGURE 2;

FIGURE 8 is an enlarged, fragmentary view, partially in section, taken through the control panel shown in FIGURE 3;

FIGURE 9 is a fragmentary view taken along line 9-9 of FIGURE 8;

FIGURE 10 is a schematic circuit diagram of the toy shown in FIGURES 1 through 9;

FIGURE 11 is a fragmentary view taken along line 11-11 of FIGURE 7; and

FIGURE 12 is an enlarged, fragmentary view taken along line 12-12 of FIGURE 2.

The operating mechanism of the present invention is particularly designed to be utilized in a housing which simulates a jet plane. The cockpit of the jet plane is enlarged and the other parts of the jet plane are proportioned so that an operator of the toy, by balancing the jet plane on a pair of handles attached thereto, may pretend that he is a jet pilot operating his jet plane through desired flight patterns, such as dog fights, strafings, etc. To enhance the simulation, the operating mechanism within the housing permits the operator to selectively produce a noise simulating the whine of a jet engine, reciprocate a simulated cannon in the nose of the jet plane while producing a noise simulating the firing of the cannon, and fire simulated rockets from rocket launchers on the wings of the jet plane.

More specifically, the housing 10 shown in the drawings is a fanciful representation of a flying wing type jet plane, which a child can maneuver as he desires. The housing 10, which may be constructed of plastic material and in two mating pieces, includes a pair of in-

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terconnected wings 12 and an exaggerated forward wall of a cockpit 13 disposed on the wings 12. The cockpit comprises a control panel 14 disposed on the upper surface of the wings 12 adjacent the trailing edges thereof, the control panel 14 having an arcuate upper edge and being slanted forwardly. To blend the control panel 14 into the wings 12, the housing 10 is provided with a portion 16, arcuate in transverse cross section, which gradually rises from a point behind the apex 18 of the wings 12 to the upper edge of the control panel 14. An arcuate shaped, transparent windshield 20, which extends upwardly and rearwardly from the arcuate portion 16 adjacent the upper edge of the control panel 14, may be provided to enhance the simulation of a cockpit of a jet plane. A gun sight 22 may also be attached to the top of the arcuate portion 16. Furthermore, a simulated housing for a fuel tank or jet turbine 24 may be provided at the tip of each wing 12.

Projecting forwardly from the apex 18 of the wings 12 is a simulated cannon 26, and from the forward edges of the wings 12, on either side of the cannon 26, is a simulated rocket launcher 28 and 29. To enable the operator to maneuver the housing 10 a pair of handles 30 and 31 are provided which extend downwardly from the lower surface of the wings 12, adjacent the trailing edges thereof. The handles 30 and 31 are located in such a position as to balance the housing 10. In the illustrated embodiment the handles 30 and 31 are located slightly to the outside of the rocket launchers 28 and 29, respectively.

The housing 10 is preferably proportioned so that the tips of the wings 12 extend beyond the shoulders of a child, the cockpit 13 is of sufficient size to provide a face shield for the child, and the handles 30 and 31 are positioned approximately at the sides of the body of the child. In this way, by gripping the handles 30 and 31, the child may pretend that he is in the cockpit of a jet plane which he can maneuver as desired.

The simulated whine of the engine of a jet plane is produced by a noise producing means 32 disposed inside in the housing 10 on a base plate 34, the base plate 34 being supported above the bottom of the housing 10 by means such as a plurality of vertically disposed support pins 36. As shown particularly in FIGURE 6, the noise producing means 32 includes an inverted L-shaped reed or vibrator 38, the outer end of which rides upon the teeth of an intermediate spur gear 40, the other end being suitably mounted to the base plate 34. The shaft 42 of the spur gear 40 is journaled in an aperture (not shown) in an upstanding leg 44 of the U-shaped bracket 46, which is mounted to the base plate 34 generally along the center line between the wings 12. The spur gear 40 is engaged by a pinion gear 48 (FIG. 6) attached to the end of the shaft 50 of an electric motor 52 which is mounted to the inner surface of the other upstanding leg 54 of the bracket 46, the motor shaft 50 extending through an aperture (not shown) in the first mentioned upstanding leg 44 of the bracket 46. Rotation of the motor 52 causes the spur gear 40 to rotate which, in turn, oscillates the vibrator 38, thus producing an audible sound resembling the whine of a jet engine.

The motor 52 is actuated by the closing of a motor switch 56, the switch being closed by the depression of a horizontally extending trigger pin 58 which is guided by an aperture in the upper portion of the right hand handle 31 (FIG. 7). The motor switch 56, which may be normally open, spring contact type switch, as shown in FIG. 11, is mounted to the underside of the base plate 34 in position to be closed by the forward movement of the trigger pin 58.

Electric power for the motor 52 is provided by a pair of dry cell batteries 62 and 64, connected in series, which

are carried in tubular containers 66 and 68 respectively, that extend inwardly from the simulated control panel 14, as shown in FIG. 8. The batteries 62 and 64 are inserted into the containers 66 and 68 in alternate directions, and are connected in series by a common spring contact 70 attached to a removable portion 72 of the control panel 14. The spring contact 70 urges the other end of the batteries 62 and 64 against a pair of button contacts 74 and 76, respectively, extending through the closed ends of the cylindrical containers 66 and 68.

In the illustrated embodiment, the button contact 74 on the left-hand container 66 is connected electrically through a conductor 78 to the motor 52, and the button contact 76 on the right-hand container 68 is connected electrically through a conductor 80 to a key operated switch 82 mounted on the control panel 14. The switch 82, in turn, is connected through a conductor 84 to the motor switch 56, the motor switch 56 being connected by a conductor 86 to the motor 52.

The key operated switch 82 as shown particularly in FIGS. 8 and 9, includes a cylindrical insert 88, a reduced diameter portion (not shown) of which is journaled in a suitable aperture (not shown) in the control panel 14, the cylindrical insert 88 having a slot 90 therein which is adapted to receive a key 92. Mounted on the rear of the control panel 14 is the normally open, spring contact type key switch 82, which is in such a relationship to the key 92 that, when the key 92 is vertical, the switch 82 is open and, when the key 92 is in a horizontal position, the switch 82 is closed. Since the key operated switch 82 and the motor switch 56 are in series, both switches must be closed to actuate the motor 52.

The motor 52 is also utilized to reciprocate the simulated cannon 26 in the apex 18 of the housing 10, and to produce an explosive sound to thereby simulate the firing of the cannon 26. The cannon 26 includes an inner member 94 having a cylindrical shank 96 which is guided for axial movement by a tubular outer member 98, the outer member 98 being attached to the apex 18 of the housing 10.

When it is desired to reciprocate the cannon 26, the operator of the toy pushes a forwardly extending trigger pin 100, which is guided by an aperture 102 in the upper portion of the left-hand handle 30. The inner end of the trigger pin 100 is connected to a downwardly extending ear 104 of an L-shaped slide 106, the slide 106 being guided for forward movement on the base plate 34 by a bracket 107 or the like, (FIG. 2). The slide 106 is biased in a rearward direction by a coil spring 110 disposed in an enlarged portion 111 of the aperture 102 in co-axial relationship with the trigger pin 100, the spring 110 bearing upon a disc 114 which is fixedly attached to the trigger pin 100 near its rearward end. The forward end of the slide 106 is provided with a cam surface 108 which, when the slide 106 is moved forwardly, moves under a generally horizontally extending arm 113 of a bell crank 112, (FIG. 12), the bell crank 112 being pivotally mounted to the base plate 34 by a suitable means. The upper arm 114 of the bell crank 112 bears upon the end of an eccentric shaft 116 which is journaled in apertures (not shown) in the upstanding legs 44 and 54 of the U-shaped bracket 46 forwardly of the intermediate spur gear 40. The eccentric shaft 116 is biased so as to oppose the transverse movement caused by the rotation of the bell crank 112 by a leaf spring 118 bearing on the opposite end of the shaft 116, the leaf spring 118 being suitably mounted to the base plate 34.

When the bell crank 112 is rotated by the slide 106, the eccentric shaft 116 is moved transversely and a spur gear 120 fixedly mounted to the shaft 116 adjacent the end upon which the bell crank 112 bears, engages a pinion gear 122 fixedly mounted to the shaft 42 of the intermediate spur gear 40. Thus, if the intermediate spur gear 40 is being rotated by the motor 52, the eccentric

shaft 116 is rotated, thereby reciprocating the inner member 94 of the cannon 26, the inner end of which is linked to the eccentric shaft by a connecting rod 124. The connecting rod 124 is provided with an eye 126 at its rearward end which is rotatably mounted to the eccentric portion of the eccentric shaft 116, and a hook portion 128 at its forward end which is inserted into a transversely extending aperture 129 in the rearward end of the inner member 94 of the cannon 26.

To produce the noise simulating the firing of the cannon, a reed or vibrator 130 is disposed in such a position as to be actuated by a cam portion 131 on the eccentric shaft 116. The vibrator 130 is mounted to the lower wall of the housing 10, which in cooperation with the other walls of the housing 10 define a sounding chamber that amplifies the vibration of the vibrator 130.

In the illustrated embodiment, the simulated rocket launchers 28 and 29 are disposed in forwardly extending relationship, on either side of the cannon 26. Each includes (FIG. 5) a tube or barrel 132 adapted to receive the cylindrical shank 134 of a rocket 136. The barrel 132 is in two axially aligned sections 138 and 140, the forward section 138 being attached to the housing 10, and the rearward section 140 being attached to the top of the base plate 34. A propulsion spring 142 for ejecting the rocket 136 from the barrel 132 is disposed within the rearward section 140, the rear end of the propulsion spring 142 being suitably attached to the rear end closure wall 144 of the rear section 140.

The shank 134 of the rocket 136 is of proper diameter to slide freely in the barrel 132, and is of such a length that when the rocket 136 is pushed manually into the barrel 132 so as to sufficiently compress the propulsion spring 142, the rear head 146 of the rocket 136 will reach a position such that the shoulder 148 surrounding the neck 150 of the rocket 136 will pass behind the edge of an upstanding latch portion 152 of a generally L-shaped trigger 154. The latch portion 152, which extends upwardly through a suitable slot 156 cut in the base plate 34 and the wall of the barrel 132, is the forward terminal end of a forwardly extending arm 158 of the L-shaped trigger 154. The trigger 154 is pivoted to a pair of ears 160 which extend downwardly from the base plate 34, forwardly of the position of the handle 30. The arm 158 of the trigger 154 is biased upwardly by an urging means such as a leaf spring 162 attached to the bottom of the housing 10.

The other arm 164 of the trigger 154 extends downwardly through a slot 166 in the handle 30 to a convenient position in advance of the handle 30 so that the operator of the rocket launcher 28 may pull the trigger 154 rearwardly to release the rocket 136. The forwardly extending arm 158 is suitably offset to position the latch portion 152 in the slot 156 in the barrel 132 and base plate 34.

From the above it can be seen that the operator while maneuvering the toy may selectively produce the whine of the jet engine by pushing the right trigger pin 58, simulate the firing of the cannon 26 in the apex of the housing 10 by pushing the left trigger pin 100, and launch the rockets 136 by pulling the trigger 154 on the associated handles 30 and 31.

Various changes can be made in the above described toy without departing from the scope of the invention. Various of the features of the invention are set forth in the following claims.

I claim:

1. A toy comprising a housing, means on said housing defining the wings of a jet plane, the tips of which extend beyond the shoulders of the operator of the toy, means on said housing defining a cockpit of a jet plane which is of sufficient size to provide a face shield for the operator, a pair of spaced apart handles extending downwardly from said housing in such positions as to balance the housing whereby the operator may maneuver

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the toy, means on said housing defining a reciprocating simulated cannon extending from said housing, means on said housing for reciprocating said cannon, means on said housing for producing a sound simulating a firing sound incident to the reciprocation of said cannon, means on said housing for producing a sound simulating the whine of a jet engine, and means on said housing for selectively activating said cannon reciprocating means and said whine producing means.

2. A toy comprising a housing, means on said housing defining the wings of a jet plane, the tips of which extend beyond the shoulders of the operator of the toy, means on said housing defining a cockpit of a jet plane which is of sufficient size to provide a face shield for the operator, a pair of handles extending downwardly from said housing in such positions as to balance the housing whereby the operator may maneuver the toy, a reciprocating simulated cannon extending forwardly from said housing, means on said housing for reciprocating said cannon, means on said housing for producing a sound simulating a firing sound incident to the reciprocation of said cannon, means on said housing for producing a sound simulating the whine of a jet engine, means on said housing defining a rocket launcher extending forwardly from said wings, and means on said housing for selectively actuating said cannon reciprocating means, said whine producing means, and said rocket launcher.

3. A toy comprising a housing, means on said housing defining the wings of a jet plane, the tips of which extend beyond the shoulders of the operator of the toy, means defining a cockpit of a jet plane which is of sufficient size to approximately shield the face of the operator, a pair of spaced apart downwardly extending handles on said housing, a reciprocable simulated cannon extending from said wings, means carried by said housing for producing a sound simulating the whine of a jet engine, means on said housing for axially reciprocating said cannon, means on said housing for producing a sound simulating a firing noise incident to the reciprocation of said cannon, and means on said handles for selectively activating said cannon reciprocating means and said whine producing means.

4. A toy comprising a housing, means on said housing defining the wings of a jet plane, the tips of which extend beyond the shoulders of the operator of the toy, means on said housing defining a cockpit which is of such a size as to provide a shield for the face of the operator, a pair of spaced apart downwardly extending handles on said body, means defining a reciprocating simulated cannon extending forwardly from said housing, means defining a rocket launcher extending forwardly from said wings, means carried by said housing for producing a sound simulating the whine of a jet engine, means operated by said whine producing means for reciprocating said cannon, means on said housing for producing a sound simulating a firing noise incident to the reciprocation of said cannon, means on said housing adapted to eject a rocket from said rocket launcher, and manually actuated means on said handles for selectively activating said whine producing means, said cannon reciprocating means, and said rocket ejecting means.

5. A toy jet plane comprising a housing provided with a reciprocable member extending forwardly therefrom and a base plate mounted on said housing, means on said housing for producing a sound effect, means on said housing for reciprocating said member including a shaft which has an eccentric portion and is journaled on said base plate, driving means mounted on said base plate, the shaft being axially movable between a non-operating position and an operating position in which the shaft is in engagement with said driving means, urging means biasing said shaft toward said non-operating position, a rod connecting the eccentric portion of said shaft to said member, and manually actuated means for moving said shaft to said operating position, and means

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on said housing for producing a noise incident to the operation of said reciprocating means.

6. A toy jet plane comprising a housing provided with a reciprocable member extending forwardly therefrom and a base plate mounted on said housing, means on said housing for producing a sound effect, means on said housing for reciprocating said member including a shaft which has an eccentric portion and is journaled on said base plate, driving means mounted on said base plate, the shaft being axially movable between a non-operating position and an operating position in which the shaft is in engagement with said driving means, urging means biasing said shaft toward said non-operating position, a rod connecting the eccentric portion of said shaft to said member, and manually actuated means for moving said shaft to said operating position, and means on said housing for producing a noise incident to the operation of said reciprocating means including a cam means on said shaft, and a reed mounted on said housing in such a relation to said cam means as to be oscillated thereby.

7. A toy jet plane comprising a housing provided with a reciprocable member extending forwardly therefrom and a base plate mounted on said housing, means on said housing for producing a sound effect including an electric motor mounted on said base plate, a gear means journaled on said base plate in engagement with the shaft of said motor, and a vibrator riding on the gear teeth of said gear means, said motor being powered by a series connected electric circuit including a manually actuated normally open switch mounted on said housing and a source of electric power mounted on said housing, means on said housing for reciprocating said member, including a shaft which has an eccentric portion and is journaled on said base plate, a second gear means connected to said shaft, said shaft being axially movable between a non-operating position and an operating position in which the second gear means is in engagement with said first gear means, urging means biasing said shaft toward said non-operating position, a rod connecting the eccentric portion of said shaft to said reciprocable member, and manually actuated means for moving said shaft to said operating position, and means on said housing for producing a noise incident to the operation of said reciprocating means including a cam means on said shaft and a reed mounted on said housing in such a relation to said cam means as to be oscillated thereby.

8. A toy comprising a housing, means on said housing defining the wings of a plane, means on said housing defining the cockpit of a plane, a pair of spaced apart handles extending from said housing in such positions as to allow the operator to support and maneuver the toy, means on said housing defining a simulated gun extending from said housing, means on said housing for reciprocating said gun, means on said housing for producing a sound simulating a firing sound incident to the reciprocation of said gun, means on said housing for producing a sound simulating the sound of a plane engine, and means on said handles for selectively activating said gun reciprocating means and said engine sound producing means.

9. A toy plane comprising a housing provided with a reciprocable member extending therefrom, means on said housing for reciprocating said member including a shaft which has an eccentric portion and is journaled on said housing, a rod connecting the eccentric portion of said shaft to said member, drive means mounted on said housing, the shaft being axially movable between a non-operating position and an operating position in which the shaft is in engagement with said driving means, urging means biasing said shaft toward said non-operating position, and manually actuated means for moving said shaft to said operating position, and means on said housing for producing a noise incident to the operation of said reciprocating means.

10. A toy comprising a housing, means on said housing defining the wings of a plane, means on said housing

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defining the cockpit of a plane, a pair of spaced apart handles extending from said housing in such positions as to allow the operator to maneuver the toy, means on said housing defining a simulated gun extending from said housing, means on said housing for reciprocating said gun, means on said housing for producing a sound simulating a firing sound incident to the reciprocation of said gun, and means on said housing and positioned so as to be operable by the operator while he holds said handles for selectively actuating said gun reciprocating means.

11. A toy comprising a housing, means on said housing defining the wings of a plane, means on said housing defining the cockpit of a plane, a pair of spaced apart handles extending from said housing in such positions as to allow the operator to maneuver the toy, means on said housing defining a simulated projectile launcher and adapted to receive a simulated projectile, means on said housing for launching the projectile from said launcher, and means on said housing and positioned so as to be operable by the operator while he holds said handles for selectively actuating said projectile launching means.

12. A toy comprising a housing, means on said housing defining the wings of a plane, means on said housing defining the cockpit of a plane, a pair of spaced apart handles extending from said housing in such positions as to allow the operator to maneuver the toy, means on said housing defining a simulated projectile launcher and adapted to receive a simulated projectile, means on said housing for launching the projectile from said launcher, means on said housing and positioned so as

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to be operable by the operator while he holds said handles for selectively actuating said projectile launching means, and means on said housing for producing a sound simulating the sound of a plane engine.

13. A toy comprising a housing, means on said housing defining the wings of a plane, means on said housing defining the cockpit of a plane, a pair of spaced apart handles extending from said housing in such positions as to allow the operator to maneuver the toy, means on said housing defining a simulated gun extending from said housing, means on said housing for reciprocating said gun, means on said housing for producing a sound simulating a firing sound incident to the reciprocation of said gun, means on said housing and positioned so as to be operable by the operator while he holds said handles for selectively actuating said gun reciprocating means, and means on said housing for producing a sound simulating the sound of a plane engine.

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