Dec. 15, 1925. 1,565,437

J. GREIFE

TOY AMUSEMENT DEVICE

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Fig. 1.

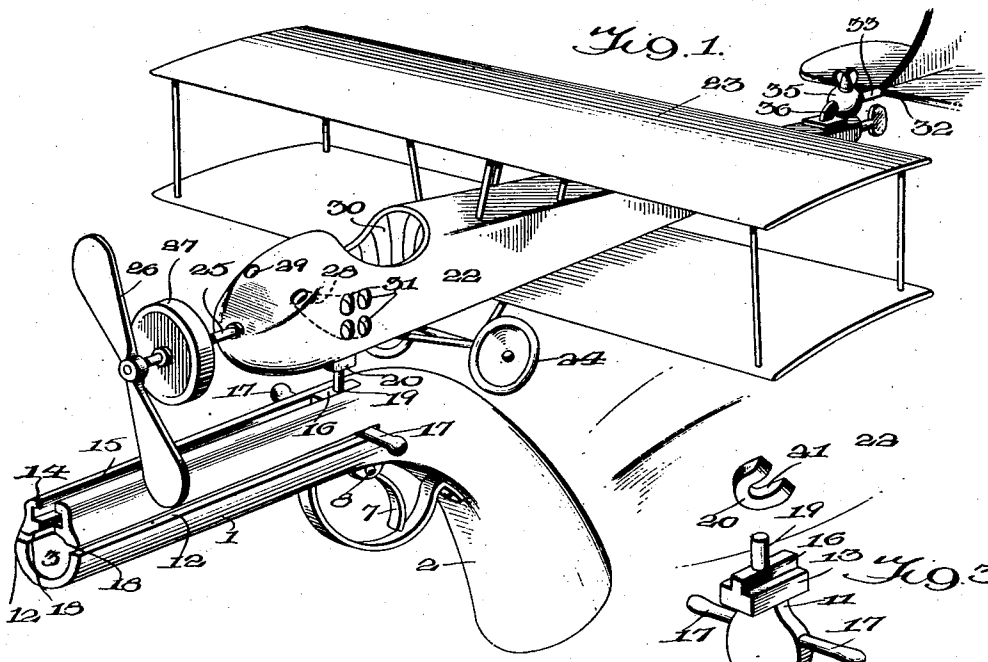


Fig. 3.

Fig. 2.

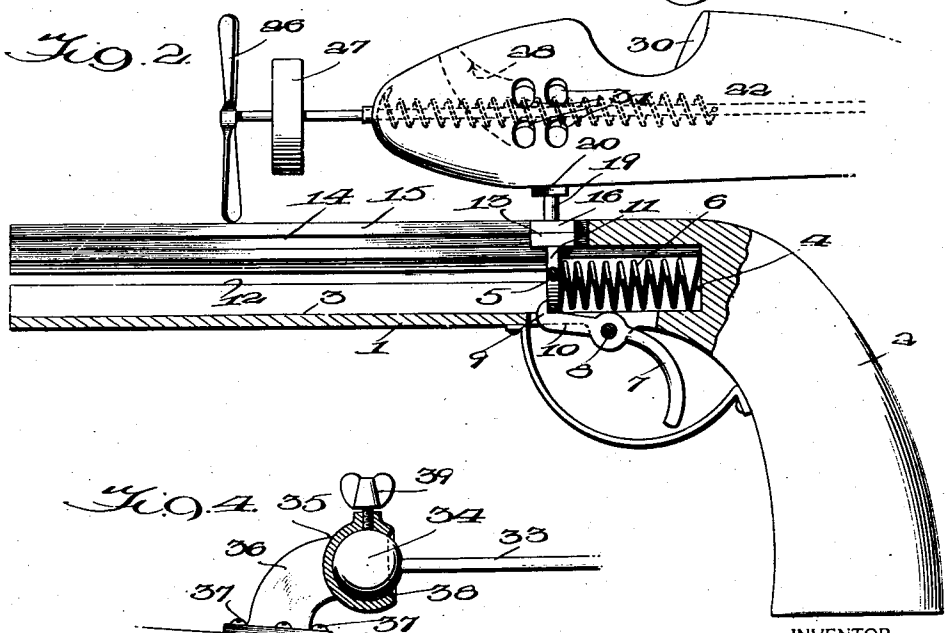


Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

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TOY AMUSEMENT DEVICE.

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To all whom it may concern:

Be it known that I, JOHN GREIFE, a citizen of the United States, and resident of Dayton, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Toy Amusement Devices, of which the following is a specification.

My invention relates to toy amusement devices, and it consists in the combinations, constructions and arrangements herein described and claimed.

An amusement device embodying the invention comprises a toy aeroplane which is adapted to be projected and to travel in the air at high velocity.

A further object of the invention is the provision in an amusement device of the character described of a toy aeroplane having a freely rotatable propeller and means for stabilizing the rotation of the propeller.

A further object of the invention is the provision in an amusement device of the character described of a toy aeroplane having a rudder and means connecting the rudder to the body of the aeroplane capable of adjustment so that the direction of movement of the aeroplane can be varied at will.

A still further object of the invention is the provision in an amusement device of the character described of a toy aeroplane having means for causing a whistling sound as the aeroplane moves through the air which resembles the whirring sound resulting from the propulsion of conventional aeroplanes through the air.

Other objects and advantages will be apparent from the following description, considered in conjunction with the accompanying drawings, in which—

Figure 1 is a perspective view showing the aeroplane and a projector therefor with cooperative elements of the aeroplane and the projector engaged with each other so that actuation of the projector will cause movement of the aeroplane through the air,

Figure 2 is a view, partly in side elevation and partly in vertical section, showing the projector and the forward end portion of the aeroplane,

Figure 3 is a perspective group view showing the thrust imparting member of the projector and the thrust receiving element of the aeroplane on the bottom of the body of the latter, and

Figure 4 is a fragmentary view, partly in side elevation and partly in vertical section, showing the means for adjustably supporting the rudder of the aeroplane on the aeroplane body.

The projector which is provided in the amusement device embodying the invention has a pistol-shaped body including a barrel 1 and a handle or grip portion 2. The barrel 1 has a bore 3 which is open at the forward end of the barrel and is closed by an end wall 4 at the rearward end of the barrel. A slide piece 5 is adapted to slide freely in the bore 3 and is connected with the end wall 4 by an expansion spring 6, one end of the spring 6 being secured to the end wall 4 in any suitable known manner and the other end of the spring likewise being secured in any suitable known manner to the slide piece 5. The arrangement is such that the slide piece will be propelled forcibly and at high velocity from the position shown in Figure 2 toward the forward end of the barrel as a result of the expansion of the spring 6 when a trigger 7 which is pivotally supported at 8 in a slot in the lower side of the barrel has been pressed rearwardly to cause a hook-shaped catch 9 at the forward end of an extension 10 to the trigger to move downwardly in the slot in the lower portion of the barrel out of the path of the slide piece 5.

The slide piece has a neck portion 11 extending slidably in a longitudinal slot 12 in the upper wall of the bore 3 and being merged at the upper end of the slot 12 into a head 13. The head 13 is slidable in a longitudinal guideway 14 which extends in the upper part of the barrel parallel with the bore 3. The guideway 14 is open at the forward end of the barrel as is a longitudinal slot 15 in the upper wall of the guideway and in which a reduced upper portion 16 of the head 13 is slidably received. The slot 12 is also open at the forward end of the barrel. The slide piece is provided with a pair of lateral arms 17 which extend through lateral slots 18 in the side walls of the bore of the barrel. The lateral slots 18 are open at the forward end of the barrel and the handles 17 protrude laterally of opposite sides of the barrel and are adapted to

be grasped and manipulated conveniently when it is desired to effect rearward movement of the slide piece 5 in the bore of the barrel to compress the spring 6 and to move the slide piece to position to be engaged by the catch 9 on the extension to the trigger, whereby the spring will be held in a compressed position until the trigger has been manipulated to effect release of the slide piece for forward movement in the bore of the barrel. The reduced upper portion 16 of the head of the slide piece carries an upstanding stud projection 19 which is adapted to pass between the arms of a substantially U-shaped thrust receiving block 20 on the bottom of the body 21 of a toy aeroplane, the inner wall of the thrust receiving block 20 defining what may be considered a notch 21 which is closed at its forward end and open at its rearward end for the reception of the upper end portion of the stud projection 19. The thrust receiving member 20 is located on the bottom of the aeroplane body directly beneath the center of gravity of the aeroplane and in such position that the central line between the thrust receiving member 20 will be directly beneath the longitudinal central line of the aeroplane body.

It therefore will be manifest that the aeroplane will be projected forcibly through the air at a high velocity when the stud projection 19 or thrust imparting member is in engagement with the thrust receiving member 20 at the forward end of the slot 21 and the trigger 7 has been manipulated to permit the spring 6 to act to propel the slide piece forward in the barrel. Since the slot with which the upper end of the thrust imparting element 19 is engaged is open at its rearward end, the thrust imparting element will disengage the member 20 when the slide piece has reached the limit of its forward movement and the forward movement of the aeroplane at high velocity will continue.

The aeroplane body 22 is formed in the similitude of the body of a conventional aeroplane and carries planes or wings 23 and a miniature landing gear 24 which are formed in imitation of like parts of a full sized aeroplane. A rotatable shaft 25 extends in advance of the forward end of the body 22 and carries a propeller 26. A fly wheel 27 secured on the shaft 25 stabilizes the rotation of the propeller shaft and propeller. Passages as at 28 open through the forward end of the body, as at 29 and through the sides of the body in advance of the cock pit 30, as at 31. A hollow reed, not shown, may be placed in each of the openings 30 so that the air rushing through the passages 28 and through the leads will cause a whistling sound similar to that which is occasioned by the operation of a conventional aeroplane during its flight.

A rudder 32 is rigid with a rod 33 having a ball head 34 at its forward end. The ball head 34 is received in a socket 35 which is formed as a part of a bracket 36 that is secured at 37 on the aeroplane body at the rear end of the latter. The socket 35 has an opening 38 at its rearward side which is considerably larger in cross sectional area than the rod 33 so that a relatively great adjustment of the rudder carrying rod 33 in respect to the direction of length of the aeroplane body is permitted and the direction of movement of the aeroplane through the air therefore can be varied within a considerable range. A set screw 39 having a shank threaded through a radial opening in the socket 35 can be tightened against the ball head 34 to hold the rod 33 against movement from adjusted position in respect to the bracket 36 and therefore to the direction of movement of the aeroplane.

The propeller shaft 25 has a reduced axial guide portion 40 at its rearward end slidable in an axial socket 41 in a key 42 having a shank portion slidable and rotatable in an opening in the rearward end portion of the aeroplane body. The key 42 and the propeller shaft are axially alined and the socket 41 is non-circular in cross sectional contour for engagement with a correspondingly configured portion 43 of the propeller shaft. The portion 43 of the propeller shaft is located immediately in advance of the reduced end portion 40 and the key can be moved axially to engage with or disengage the portion 43, as desired. When the key 42 is engaged with the portion 43 of the propeller shaft, the latter cannot rotate independently of the key, a spiral spring 44 which encircles the shaft 25 is attached at one end to the latter and at its opposite end to the aeroplane body. The key has a finger piece or handle 45 at its outer end whereby the key and shaft can be turned as a unit in one direction when the key is in engagement with the portion 43 of the shaft to effect energization of the spring 44. A pivoted gravity pawl 46 carried by the aeroplane body engages with a ratchet wheel 47 that is rigidly secured to the key 42 and holds the shaft 25 against turning in response to the actuation of the spring 44 so long as the key 42 is in engagement with the portion 43 of the propeller shaft.

In operating the device, the key is pulled rearwardly at the time the trigger 7 is pressed and the release of the shaft 25 from the key will permit the spring 44 to act to impart a torque to the propeller shaft and propeller as the aeroplane is projected through the air as a result of the operation of the projector, thus aiding in causing and sustaining the flight of the aeroplane.

Obviously, my invention is susceptible of embodiment in forms other than that illus-

trated in the accompanying drawings and I therefore consider as my own all such modifications and adaptations as fairly fall within the scope of the appended claims.

I claim:—

1. In a device of the character described, a toy aeroplane having a body formed in the similitude of that of a conventional aeroplane, said body having a passage in the forward end portion thereof open at the forward end of the aeroplane and also open rearwardly of the forward end of the aeroplane, said passage being adapted for the reception of a hollow reed or like sound causing element.

2. In a device of the character described, a toy aeroplane having a body, a bracket secured on the rearward end portion of the body and having a socket portion open at its rearward side, a rudder, a rod rigid with the rudder, said rod having a ball head at its forward end, said ball head being received in said socket, and means for releasably holding said ball head against turning about its center in said socket, the opening in the rearward side of said socket being considerably larger in cross sectional area than said rudder carrying rod.

3. In a device of the character described, a toy aeroplane having a body, a propeller shaft supported by the body, said propeller shaft having its rearward end portion reduced and having a non-circular portion at the inner end of the non-circular portion at the inner end of the reduced portion, an axially movable and rotatable winding key having a socket loosely receiving said reduced end portion of the shaft and adapted to engage said non-circular portions of the shaft when the key has been moved axially to its foremost position on the shaft, a torsion spring encircling said shaft and connecting said shaft with the aeroplane body, and means for holding said key against rotating in one direction about its axis.

4. In a device of the character described, a toy aeroplane having a body, a propeller shaft supported by the body, said propeller shaft having its rearward end portion reduced and having a non-circular portion at the inner end of the non-circular portion at the inner end of the reduced portion, an axially movable and rotatable winding key having a socket loosely receiving said reduced end portion of the shaft and adapted to engage said non-circular portions of the shaft when the key has been moved axially to its foremost position on the shaft, a torsion spring encircling said shaft and connecting said shaft with the aeroplane body, and means for holding said key against rotating in one direction about its axis, said key holding means acting to prevent rotation of said shaft in response to the actuation of said spring when said key is in engagement with the non-circular portion of said shaft.

JOHN GREIFE.