

PATENT SPECIFICATION



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PROVISIONAL SPECIFICATION

Improvements in Breach Loading and Trigger Release Mechanism for Toy Anti-aircraft or other Toy Guns

We, BRITAINS LIMITED, a British Company, of 28, Lambton Road, Hornsey Rise, London, N.19, and GEORGE EDWARD SMALLWOOD, a British Subject, of 46, Mayfield Avenue, North Finchley, London, N.12, do hereby declare the nature of this invention to be as follows:—

This invention consists in improvements in breach loading and trigger release mechanism for toy anti-aircraft or other toy guns.

The object of our invention is to provide means in a toy breach loading anti-aircraft gun or other toy breach loading guns whereby on opening the breach a propelling spring for projecting a pellet or the like is tensioned to the "firing" position, whereupon on inserting the pellet in the latter the breach can then be closed by the initial operation of a lever or the like, and then by a further operation of said lever or the like the trigger mechanism is released and the gun "fired".

Suitable mechanism for achieving the object of our invention may be as follows:—

The gun is provided with a slidable breach block forming the top half of the breach and slidable upon the lower half of the breach. At the front end of the block is a transverse gun shield provided on each side with a forwardly extending inverted channel shaped member, each provided at its forward end with a block. Extending through each block and fixed thereto is a guide rod the two rods being straight and parallel to one another. Fixed to the rear end of the lower half of the breach is a transverse guide plate and fixed to the gun barrel is a similar transverse guide plate, these guide plates being provided with holes in which the respective parallel guide rods can slide, the rear ends of these guide rods being fixed to a transverse plate fixed to the rear end of the upper half of the breach. A coil spring surrounds each rod between the blocks and the rear guide plate.

Abutting against the rear face of the front fixed plate is a plate movable in a

plane at right angles to the axis of the gun barrel and guided in said plane between said fixed plate and a block fixed to the under side of the gun barrel and mounted on a transverse bar of the gun carriage constituting the trunnions of the gun.

One lateral edge of this plate is extended upwardly and bent over forwardly at a right angle to said movable plate and then again parallel to the face of the movable plate so as to form a channel embracing the one side edge of the fixed plate and extending above the latter. The front and rear faces of this channel are each provided with vertical or substantially vertical slots opposite to one another. The other side of the movable plate is provided with a hole through which the front end of the one side rod passes this rod thus forming a pivot for the movable plate. The front end of the opposite side rod passes through the slots in the aforesaid faces of the channel, the movable plate can thus have a certain amount of angular movement about its pivot.

The explosion means for the pellet to be fired by the gun is formed by a bar slidable longitudinally beneath the bore of the barrel, and provided with an upstanding abutment at its rear end extending through a longitudinal slot formed along the lower half of the breach, the front end of this bar being connected by a traction spring to a lug or the like situated towards the nozzle of the gun barrel. This bar extends through a slot in the forward fixed plate and is provided towards its front end with a shoulder or the like and suitable means are provided for guiding it in its sliding movements. Connected to the top of the channel of the aforesaid angularly movable plate is a small lever.

In operation the breach is opened by pulling it back to its limit of movement whereby the trigger bar is brought back and held in position and the firing spring tensioned and at the same time the front end of the one rod is brought behind the front face of the channel of the movable plate and at the same time the plate is

given an angular movement so that the slot in said front face ceases to register with the end of this rod which abuts against the inner side of said front face 5 while the end of the lever is raised.

The breach is then closed by an initial depression of the lever which moves the plate and brings the slot in the channel to such position as to allow the rods to 10 move forward under the influence of springs and by then further depressing the lever the movable plate is given a further angular movement which

releases it from engaging the trigger bar whereupon the latter is suddenly shot 15 forward under the action of its spring propelling the pellet by its upstanding abutment.

Dated this 18th day of November, 1936.

For the Applicants,
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COMPLETE SPECIFICATION

Improvements in Breach Loading and Trigger Release Mechanism for Toy Anti-aircraft or other Toy Guns

We, BRITAINS LIMITED, a British 20 Company, of 28, Lambton Road, Hornsey Rise, London, N.19, and GEORGE EDWARD SMALLWOOD, a British Subject, of 46, Mayfield Avenue, North Finchley, London, N.12, do hereby declare the 25 nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention consists in improvements 30 in breach loading and trigger release mechanism for toy anti-aircraft or other toy guns.

Our invention consists in a toy breach loading gun having a breach comprising 35 an upper part axially slidable upon a lower part integral with the gun barrel and wherein on sliding back said upper part a propelling spring actuating an ejector for projecting a pellet or the like 40 from the gun is tensioned to the firing position and said upper part is held in the rear position so that the breach remains open and after the insertion of the pellet the said upper part is automatically 45 moved forward to close the breach by an initial movement given to a lever or the like mounted on the gun and by a further movement of said lever in the same direction the tension of the propelling spring 50 is released and the pellet projected from the gun barrel by the ejector.

An example of construction of the invention is illustrated in the annexed 55 drawings in which:

Fig. 1 is a side elevation of the gun in the normal position that is to say with the breach closed and the propelling mechanism for the projectile in the non-propelling position. 55

Fig. 2 is an elevation of Fig. 1 seen from the back of the gun. 60

Fig. 3 is a detail view in side elevation and drawn to an enlarged scale

showing the breach open ready for the insertion of the projectile. 65

Fig. 4 is a plan view of Fig. 3.

Fig. 5 is a view similar to Fig. 3 showing the breach closed and the parts in the positions for firing the gun.

Fig. 6 is a section on line A—A of Fig. 70 5 seen in the direction of the arrow.

The barrel 1 of the gun is provided with a slidable breach block 2 forming the top half of the breach and slidable upon the lower half 3 of the breach. 75 At the front end of the breach block and integral therewith is a transverse gun shield 4 provided on each side with a forwardly extending inverted channel shaped member 5, each provided at its forward end with a block 6 (Fig. 3). 80 Extending through each block 6 and fixed thereto are guide rods 7a and 7b the two rods being straight and parallel to one another. Fixed to the rear end of 85 the lower half of the breach is a transverse guide plate 8 and fixed to the gun barrel is a similar transverse guide plate 9, these guide plates being provided with holes in which the respective parallel 90 guide rods 7a 7b can slide, the rear ends of these guide rods being fixed to a transverse plate 10 fixed to the rear end of the upper half 2 of the breach. A coil spring 11 surrounds each rod between the 95 blocks 6 and the rear guide plate 8.

Abutting against the rear face of the fixed guide plate 9 is a plate 12 angularly movable in its plane at right angles to the axis of the gun barrel 1 and guided 100 in said plane between said fixed plate and a block 13 fixed to the under side of the gun barrel and mounted on a transverse bar 14 of the gun carriage constituting the trunnions of the gun. 105

One lateral edge portion of the plate 12 is extended upwardly and bent over forwardly at a right angle 15

to said movable plate and then again parallel to the face of the movable plate as shown at 16 so as to form a channel 16a embracing the one side edge of the fixed plate 9 and extending above the latter. The front and rear faces of this channel are each provided with vertical or substantially vertical slightly curved slots 17 (Fig. 6) opposite to one another. Towards the other side edge of the movable plate is a hole 18 through which the front end of the one side rod 7a passes this rod thus forming a pivot for the angularly movable plate 12. The front end of the opposite side rod 7b passes through the slots 17 in the aforesaid faces of the channel of the plate 12 which can have a certain amount of angular movement about its pivot.

The expelling means for the pellet to be fired by the gun is formed by a bar 19 slidable longitudinally beneath the bore of the barrel, and provided with an upstanding abutment 20 at its rear end extending through a longitudinal slot formed along the lower half 3 of the breach, the front end of this bar being provided with a hook 21 to which is connected a traction spring 22 the other end of which is connected to a lug or the like 23 situated towards the nozzle of the gun barrel 1. The bar 19 extends through a slot 24 in the fixed plate 9 and is provided towards its front end with a shoulder 25 and is also provided with a longitudinal slot 26 through which a spindle 27 connecting the blocks 6 passes. The bar is guided in its longitudinal movement by its abutment 20 sliding in a guide slot 20a of the lower half of the breach.

In operation the breach is opened by pulling the top half 2 back to its limit of movement by means of the shield 4 whereby the bar 19 is pulled back by the spindle 27 connecting the blocks 6 abutting against the rear end of the slot 26 of the bar 19 the movement being continued until the shoulder 25 has passed through the slot 24 in the plate 9 whereupon the angularly movable plate 12 turns sharply by the action of a pressure spring 28 contained in the channel 16a of the plate 12, about the rod 7a acting as a pivot so that the plate 12 comes in front of the shoulder while at the same time the curved slot 17 of the front face of the channel 16a moves away from the path of the rod 7b so that this and the rod 7a cannot then move forward and the part 2 of the breach is held open while the springs 11 are compressed and the spring 22 extended, a trigger 29 mounted on top of the channel portion of the plate 12 being brought to a top position, the parts

being in the positions shown in Fig. 3.

The pellet having been placed in the breach the latter is then closed by an initial depression of the trigger 29 which moves the plate 12 and brings the slot 17 in the front face of the channel to such position as to allow the rod 7b and consequently the rod 7a to move forward by the extension of the compressed springs 11 and then by further depressing the trigger the movable plate 12 is given a further angular movement whereby the shoulder 25 of the bar 19 is released whereupon the latter is suddenly shot forward under the action of the spring 22 while propelling the pellet by its upstanding abutment, and the parts are returned to their normal positions.

The gun carriage 30 is rotatable on a platform 31 by means of a thumb screw 32 mounted on the carriage and having a toothed wheel 33 gearing with an interiorly toothed crown 34.

The angle of inclination of the gun can be adjusted by means of a thumb screw 35 having a toothed gear wheel 36 engaging with an arcuate rack 37 of a quadrant 38 mounted on the bar 14.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A toy breach loading gun having a breach comprising an upper part axially slidable upon a lower part integral with the gun barrel and wherein on sliding back said upper part a propelling spring actuating an ejector for projecting a pellet or the like from the gun is tensioned to the firing position and said upper part is held in the rear position so that the breach remains open and after the insertion of the pellet the said upper part is automatically moved forward to close the breach by an initial movement given to a lever or the like mounted on the gun and by a further movement of said lever in the same direction the tension of the propelling spring is released and the pellet projected from the gun barrel by the ejector.

2. Toy breach loading gun according to claim 1 wherein the upper part of the breach is guided in its axial movement by parallel spring governed guide rods fixed thereto and slidable with respect to the gun barrel, a longitudinally slidable bar being arranged beneath the axis of the bore of the gun barrel and provided with an upstanding abutment at its rear end extending through a longitudinal slot formed in the lower part of the breach, the front end of said bar being connected to the rear end of the pro-

5 pelling spring the other end of which is
 connected to the gun barrel adjacent the
 nozzle thereof, whereby on a rearward
 sliding movement being imparted to the
 upper part of the breach the propelling
 10 spring is tensioned, means being pro-
 vided whereby in the rearward position
 of the upper part of the breach the said
 rods and thereby the said upper part are
 15 held in the rearward position, the initial
 operation of the lever or the like
 operating said means to allow said rods to
 move forward and close the breach while
 20 the further operation of said lever
 operates said means to release a catch for
 said bar, whereupon the tension of the
 propelling spring is suddenly released
 whereby said bar springs forward and
 25 projects a pellet inserted in said breach
 through the gun barrel by its upstanding
 abutment acting against the pellet.

3. Toy breach loading gun according
 to claim 2 wherein the front end of the
 upper part of the breach is provided with
 25 a transverse gun shield by means of
 which said upper part can be pulled
 backwards to open the breach.

4. Toy breach loading gun according
 to claims 2 and 3 wherein the gun shield
 30 is provided on each side with an inverted
 channel shaped member each having a
 block through which the respective guide
 rods extend and are fixed thereto, the
 said guide rods being fixed at their rear
 35 ends to a transverse member fixed to the
 rear end of the upper part of the breach,
 the said rods being guided by a trans-
 verse guide plate fixed to the gun barrel
 and by a guide plate fixed to the lower
 40 part of the breach, coil springs surround-

ing said rods being arranged between
 said last mentioned guide plate and said
 blocks.

5. Toy-loading gun according to the
 preceding claims wherein a plate, 45
 angularly movable in a plane at right
 angles to the gun barrel, abuts against
 the rear face of the transverse guide
 plate fixed to the gun barrel, one lateral
 edge portion of said angular movable 50
 plate being bent to form a channel
 embracing one side edge of said guide
 plate while towards the other edge of
 said angularly movable plate is a hole
 through which one of said guide rods 55
 extends and forms a pivot for said
 angularly movable plate, the said
 channel being provided with opposing
 slots through which the other of said
 guide rods normally extends and with a 60
 spring tending to move said plate about
 its pivot in an upward direction, the said
 channel being provided with a trigger
 lever for imparting angular movements
 of said plate against the action of said 65
 spring substantially as and for the
 purpose described.

6. Breach loading and trigger release
 mechanism for toy anti-aircraft or other 70
 toy guns operating substantially as
 herein described and constructed sub-
 stantially as herein described and as
 illustrated in the annexed drawings.

Dated this 18th day of November 1937.
 For the Applicants,
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[This Drawing is a reproduction of the Original on a reduced scale.]

