

## PATENT SPECIFICATION



Application Date: Feb. 18, 1939. No. 5502/39.

525,353

Complete Specification Left: Feb. 16, 1940.

Complete Specification Accepted: Aug. 27, 1940.

### PROVISIONAL SPECIFICATION

#### Improvements in Toy Artillery 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 relates to improvements in toy artillery guns.

10 In a suitable construction of our invention the gun barrel is provided with trunnions turning on opposed spindles of the gun carriage, the wheels of which may be provided with rubber tyres. The gun carriage has a shield through a vertical slot of which the forward part of the gun barrel projects and can be elevated or depressed as required.

20 Extending along the underside of the barrel is a longitudinal channel open at the bottom and formed by two side plates which may be cast with the barrel, and on the lower edge of one of these side plates is a lug having a bore in which a right angled bent end of a rod engages, this rod extending rearwardly and substantially horizontally. The rear part of this rod is screw threaded and its end extends through a lug formed on one of the side members of the gun carriage, while between this end lug and a stop cast on this side member is a milled edged, screw threaded, small wheel which is turnable by hand on the screw threaded portion of the rod so that by turning this wheel in the one or other direction the rod will be advanced or retracted, and the muzzle of the gun barrel thereby gradually raised or lowered to the elevation required for firing a shot at a given target.

45 At the rear end of the combined barrel and channel are two cheeks forming between them a vertical guide slot lying on the central horizontal plane of the gun barrel and with which the breech of the gun connects the lower ends of these cheeks depending below the lower edges of the respective side members of the channel, one of said cheeks being deeper

than the other.

Mounted between these cheeks is the propelling member for the projectile, this being a suitably shaped vertical plate pivoted at its lower end on a spindle 55 mounted in the lower end of the shallow cheek.

The upper end of the propelling member is provided with an extension normally projecting above the top of the rear end 60 of the barrel of the gun and by which the said member can be turned backwards about its pivot by hand.

The lower end of this member is curved forward to form a nose which abuts 65 against, and under, the rear end of a plate spring housed in the aforesaid channel and when the propelling member is turned backwards, this nose flexes the spring while curving the latter upwards 70 with the nose pressing under the rear end of the spring maintains the spring flexed when the propelling member is maintained in the turned back position.

Fulcrummed to lower end of the deeper cheek aforesaid is an upwardly extending trigger lever, a short axial pin of which, as the propelling member is turned backwards, engages a catch of the propelling member in such a way that on the backward turning of the propelling member the trigger lever is moved to the set position and held there while by the engagement of the pin and catch the propelling member is held in the rearward position 85 and the spring held tensioned.

By pressing on the head of the trigger lever the pin and catch connection is released, whereupon the propelling member snaps sharply forward, under the action of the spring, and strikes the projectile which has been inserted in the breech and propels same from the barrel of the gun.

Dated this 18th day of February, 1939.

For the Applicants,  
HERBERT HADDAN & CO.,  
Chartered Patent Agents,  
31 and 32, Bedford Street, Strand,  
London, W.C.2.

## COMPLETE SPECIFICATION

**Improvements in Toy Artillery 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,

5 Mayfield Avenue, North Finchley, London, N.12, do hereby declare the 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 relates to improvements in toy artillery guns.

The object of the present invention is to provide an improved toy artillery gun 15 which shall be simple and easy to manipulate while giving effective action.

Toy artillery or like guns are known such for instance as that described in specification No. 1215/1915 (Britains Ltd. and another) wherein a plate spring 20 mounted on the carriage of the gun proper provides the motive power for propelling a projectile from the gun, the spring being tensioned by pulling back an ejector pivoted to the carriage thereby 25 holding the spring in tension, the ejector being provided with a nose or plunger adapted to pass at high speed into the rear end of the breech of the gun and strike the projectile and propel it from the gun 30 when a trigger mounted on the carriage is operated to release the ejector from holding the spring in tension.

In our improved toy gun the plate spring is housed between two longitudinal 35 plates of the gun barrel and the ejector is released by means of a depressible trigger.

Our invention consists in a toy artillery gun of the kind wherein a plate spring 40 tensioned by means of a pivoted ejector adapted to propel a projectile from the gun under the action of said spring when released by a trigger characterized in that the spring is housed between two 45 longitudinal plates of the gun barrel constituting therewith a channel and the ejector is released by means of a depressible trigger pivoted to one of said side-plates.

50 The annexed drawings illustrate an example of construction of the invention in which:—

Fig. 1 is a side elevation of the toy gun with the propelling member for the projectile 55 in the normal position.

Fig. 2 is a plan view of the same.

Fig. 3 is a section on line A—A of Fig. 2 showing the propelling member in the ready to fire position.

60 Fig. 4 is a side view of the propelling

member and a firing trigger associated therewith.

Fig. 5 is a diagrammatic side view of Fig. 4.

In a suitable construction of our invention the gun barrel 1 is provided with 65 trunnions 2 turning on opposed spindles 3 of the gun carriage 4, the wheels 5 of which may be provided with rubber tyres 6. The gun carriage has a shield 7 70 through a vertical slot 8 of which the forward part of the gun barrel projects and can be elevated or depressed as required.

Extending along the underside of the 75 barrel is a longitudinal channel 9 open at the bottom and formed by two side plates 10 which may be cast with the barrel 1, and on the lower edge of one of these side plates is a lug 11 having a bore in which 80 a right angled bent end 12 of a rod 13 engages, this rod extending rearwardly and substantially horizontally. The rear part of this rod is screw threaded as at 14, 85 and its end extends through a lug 15 formed on one of the side members of the gun carriage 4, while between this lug and a stop 16 cast on this side member is a milled edged, screw threaded, small 90 wheel 17 which is turnable by hand on the screw threaded portion of the rod so that by turning this wheel in the one or other direction the rod will be advanced or retracted, and the muzzle of the gun 95 barrel thereby gradually raised or lowered to the elevation required for firing a shot at a given target.

At the rear end of the combined barrel and channel are two cheeks 18, 19 forming 100 between them a vertical guide slot 20 lying on the central horizontal plane of the gun barrel and with which the breech of the gun connects, the lower ends of these cheeks depending below the lower 105 edges of the respective side members of the channel, one of said cheeks 19 being deeper than the other.

Mounted between these cheeks is the propelling member 21 for the projectile, 110 this being a suitably shaped vertical plate pivoted at its lower end on a spindle 22 mounted in the lower end of the shallow cheek 18.

The upper end of the propelling member is provided with an extension 23 115 normally projecting above the top of the rear end of the barrel 1 of the gun and by which the said member can be turned backwards about its pivot 22 by hand.

The lower end of this member is curved 120

forward to form a finger 24 which abuts against, and under, the rear end 25 of a plate spring 26 housed in the aforesaid channel and when the propelling member 5 21 is turned backwards, as shown in Fig. 3, this finger flexes the spring while curving the latter upwards while the pressure of the finger under the rear end of the spring maintains the spring flexed 10 whereby the propelling member is maintained in the turned back position.

Fulcrummed as shown at 29 in Fig. 4 to the lower end of the deeper cheek 19 is an upwardly extending trigger lever 27, 15 a short axial pin 28 of which, as the propelling member 21 is turned backwards, engages a catch 30 of the propelling member is such a way that on the backward turning of the propelling member the 20 trigger lever is moved to the set position as shown in full lines in Fig. 4, and held there while by the engagement of the pin and catch the propelling member is held 25 held tensioned.

By pressing on the head of the trigger lever in the direction of the arrow 31 (Fig. 4) the pin and catch connection is released, whereupon the propelling member 30 21 snaps sharply forward to the position shown in dotted lines in Fig. 5 under the action of the spring 26, and a nose 32 of the member 21 snaps into the breech and strikes the projectile which has been 35 inserted in the barrel of the gun and propels same from the gun.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to 40 be performed, we declare that what we claim is:—

1. A toy artillery gun of the kind wherein a plate spring tensioned by means 45 of a pivoted ejector adapted to propel a projectile from the gun under the action of said spring when released by a trigger characterized in that the spring is housed between two longitudinal plates of the gun barrel constituting therewith a chan-

nel and the ejector is released by means 50 of a depressible trigger pivoted to one of said side plates.

2. A toy artillery gun according to claim 1 wherein a rearwardly extending 55 rod is connected at its front end to one of the plates while the rear end thereof is screw threaded and engages in a milled wheel secured on the gun carriage where- 60 by by turning said wheel the angle of elevation of the gun barrel can be adjusted substantially as described.

3. A toy artillery gun according to claim 1 wherein the rear end of the combined gun barrel and channel is provided 65 with two cheeks forming a vertical guide slot with which the breech of the gun barrel connects, the ejector for the projectile being turnably housed in said slot and being adapted to be turned backwards 70 to tension the plate spring and hold it in tension until the trigger is depressed whereupon the ejector snaps forward and strikes the projectile inserted in the gun barrel and discharges it therefrom sub- 75 stantially as described.

4. A toy artillery gun according to claims 1 to 3 wherein the ejector is provided with a finger which when the ejector 80 is turned backwards flexes the plate spring whereby the ejector is maintained in the turned back position in which position a pin of the trigger lever is engaged by a catch of the ejector and the trigger lever brought to the set position whereupon on 85 depressing the trigger the pin and catch connection is released and the ejector discharges the projectile from the gun substantially as described.

5. A toy artillery gun substantially as herein described and as illustrated in the 90 annexed drawings.

Dated this 16th day of February, 1940.  
For the Applicants,  
HERBERT HADDAN & CO.,  
Chartered Patent Agents,  
31 and 32, Bedford Street, Strand,  
London, W.C.2.

Fig.1.

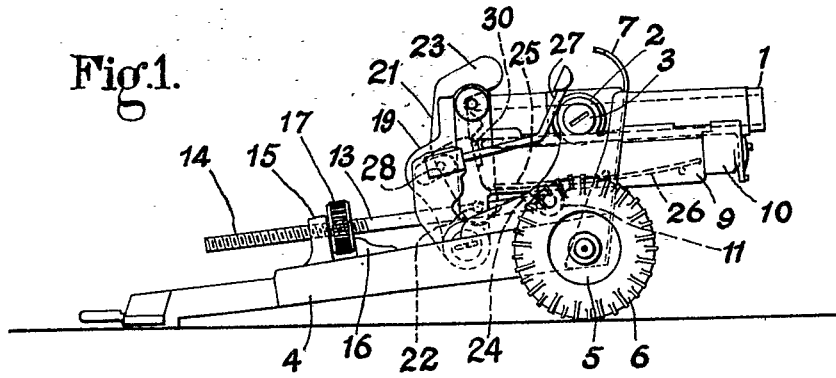


Fig.2.

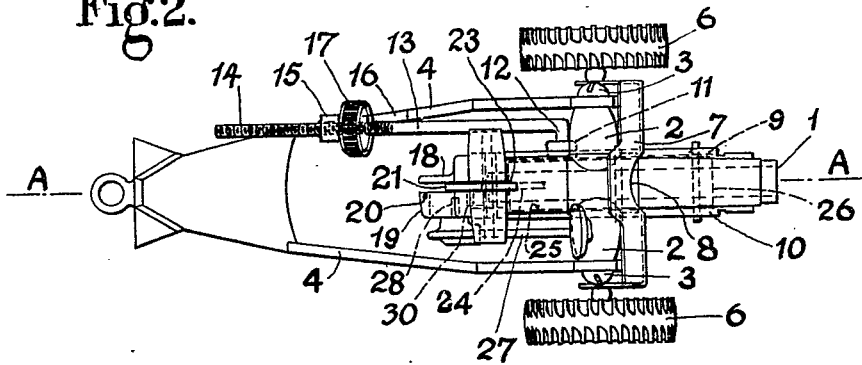


Fig.3.

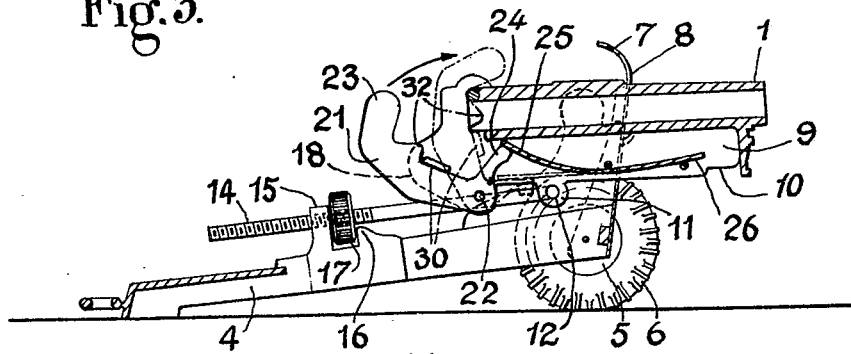


Fig.4.

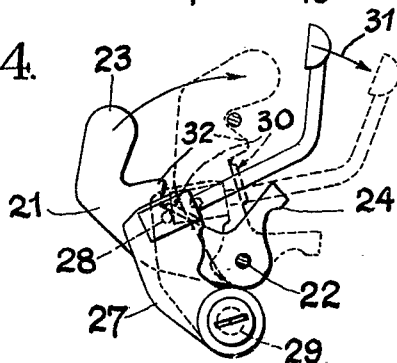
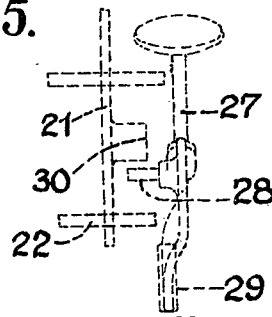


Fig.5.



[This Drawing is a reproduction of the Original on a reduced scale.]