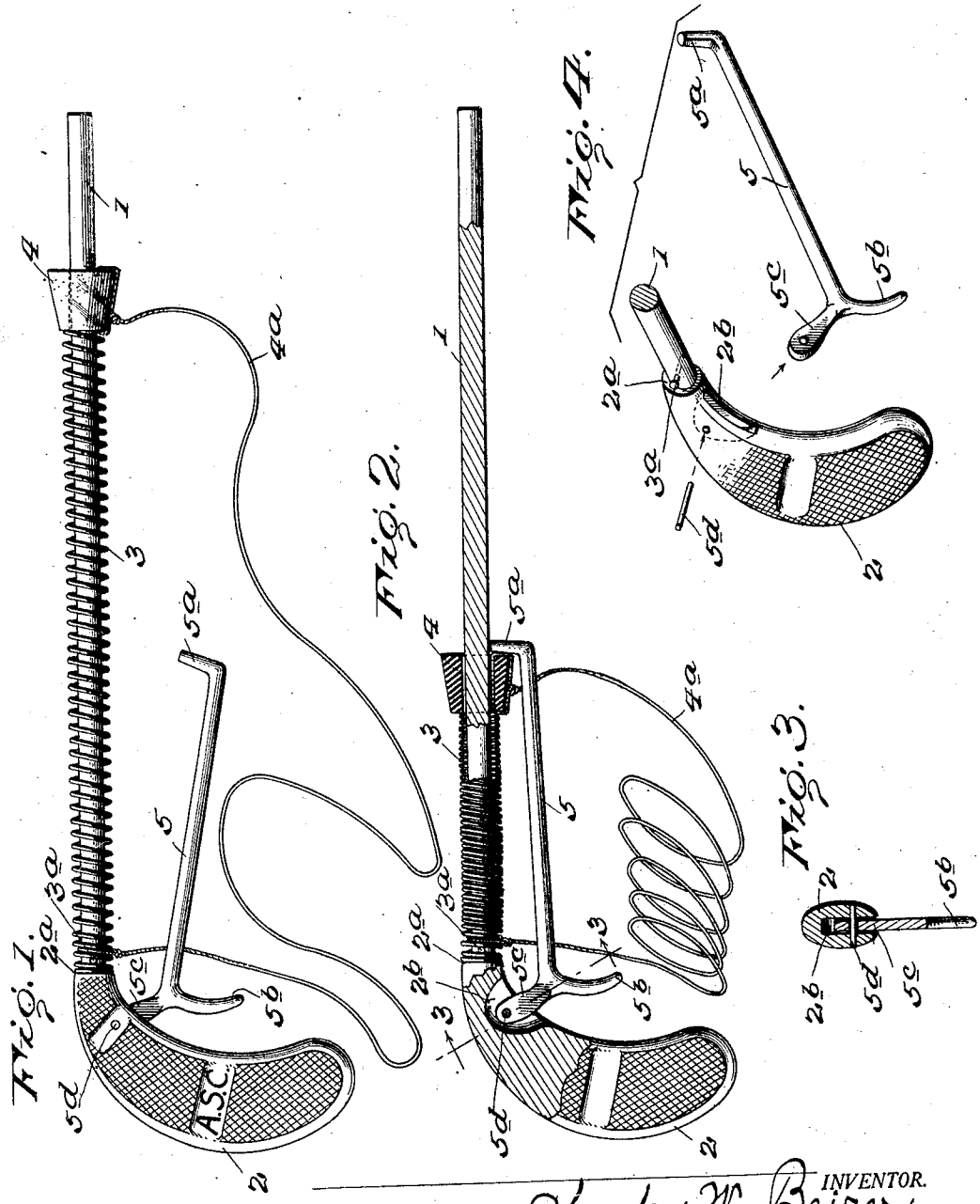
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TOY SMALL ARM.

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1,406,820. Patented Feb. 14, 1922.



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1,406,820. Specification of Letters Patent. **Patented Feb. 14, 1922.**

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To all whom it may concern:

Be it known that I, CHARLES W. BEISER, a citizen of the United States of America, and a resident of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in and Relating to Toy Small Arms, of which the following is a specification.

This invention relates to improvements in toy small arms, such as toy pistols and other guns or small arms; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the accompanying drawings illustrating what I now believe to be the preferred mechanical expression of embodiment of my invention from among other forms, constructions and arrangements within the spirit and scope thereof.

So-called military games have been extensively manufactured and sold embodying trays or bases and groups of lead (alloy) soldiers pivotally joined thereto as set forth in my Letters Patent No. 834,452, Oct. 30, 1906. These games embody flat trays carrying toy small arms and groups of lead soldiers pivotally mounted thereon. The small arm is usually secured flat on the tray to which a group of soldiers is secured, so that the assembly is sold as a unit, and the small arm can be readily detached for use. The soldiers can be swung to upright position standing upon the tray and the child can detach the small arm from the tray and shoot at the standing soldiers. When a soldier is struck the force of the projectile swings the soldier to horizontal position on the tray.

Heretofore, it has been exceedingly difficult to secure on the market, toy small arms sufficiently small in size, low in cost, accurate in action, simple in structure and operation for the purposes of these military games and the usually young children that use them, and of proper shape for securing to the trays. Air guns have heretofore been generally used in the make up of these games, but such guns are relatively very expensive, are more or less complicated and somewhat large in size in so far as these games are concerned.

It is an object of this invention to produce toy small arms that will be peculiarly adapted for use in the make up of such games, by reason of low cost, small size, simplicity in structure and operation, and durability.

A further object of the invention is to produce a toy small arm of small size yet of such weight and "balance" even in the hands of small children, as to possess such degree of accuracy as desired for the purposes intended.

With these and other objects in view, the invention consists in certain novel features in construction and in arrangements and combinations as more fully and particularly set forth and specified hereinafter.

Referring to the accompanying drawings:—

Fig. 1, is a side elevation of a toy small arm constituting an embodiment of my invention.

Fig. 2 is a partial longitudinal section of the small arm, the projecting spring being in compressed condition and so held by the projectile and trigger.

Fig. 3 is a cross section on the line 3—3, Fig. 2.

Fig. 4 is a detail perspective of the handle or stock, the trigger, and the trigger pivot shown detached and separated, the barrel being broken away.

The body or frame of the small arm is cast or otherwise formed in one solid piece of metal, and consists of the straight solid elongated barrel (or guide stem) 1, and the solid handle or stock 2 curving laterally from one end of the barrel and of enlarged cross sectional dimensions with respect thereto. The barrel is usually cylindrical and of uniform diameter throughout its length (although I do not wish to so limit my invention) and where the barrel merges into the stock an annular abutment or enlarged shoulder 2^a surrounds the barrel end to form a spring seat or abutment as hereinafter described.

In the particular example illustrated, the stock 2 is in the form of a hand grip, suitable for the hand of a child, as well as for the hand of an adult, and is so formed and arranged with respect to the barrel, as to enable the hand to easily and in fact naturally point or line up the barrel with the target and so hold the same steadily while the necessary force is applied through a finger to swing the trigger and release the projectile. This result is possible because of the heavy weight or "heft" of the body com-

posed of the stock and barrel with respect to the small size thereof, and the distribution of this weight to attain the desired "balance." This end is gained by casting said solid body of heavy metal. For instance, the body is preferably cast of approximately the same so-called lead (alloy) of which the lead soldiers of commerce are made. The specific gravity of this material is such that the small body has the desired and necessary heft and weight when grasped by the hand to attain steadiness, when coupled with the fact that I so distribute the metal as to attain the desired balance. In other words, the weight of the material is such that I can so relatively proportion and form the small stock and the barrel as to locate the center of gravity of the toy at a point near the rear end of the barrel at a point along the barrel near the junction of the barrel with the stock, even when all parts of the toy are assembled on the body.

These small arm bodies can be thus rapidly, uniformly and economically produced by casting, reducing subsequent finishing and hand work to the minimum. Furthermore, where the body is thus cast in one piece of so-called lead (alloy) it is more or less ductile, is not easily fractured, and when bent or distorted in play, can be easily restored to operative form.

The body can be so formed when cast as to readily receive the trigger and its pivot, and the propelling spring and its securing means, with a minimum expenditure of labor and time. For instance, I show an elongated cylindrical coiled expansion spring 3 loosely and longitudinally arranged on the barrel 1 with its inner (rear) end seated against and guarded by the annular shoulder 2^a. This spring is free except at its rear end which is held more or less tightly compressed or wedged against said shoulder by any suitable means, such as pin 3^a secured in the barrel, near (but spaced a slight distance from) shoulder 2^a and projecting radially from the barrel between convolutions of the spring. The body is usually cast with a radial (or diametrical) socket into which a small (usually headed) pin or brad is driven to form the projecting spring fastening pin 3^a. This pin is usually secured in the barrel before the spring is applied. After the projecting pin is secured in the barrel, the spring can be slipped onto the barrel and against the pin and then rotated on the barrel in the proper direction so that the pin acts as a fixed thread and the spring a rotary nut and the pin will enter between the convolutions and cause the spring end to advance to and become tightly wedged against shoulder 2^a to secure the spring. Springs can thus be easily applied and removed.

The projectile 4 consists of a rubber block or cork in the form of a truncated cone and having a longitudinal bore of a size to loosely receive the barrel. This projectile is preferably confined to the body by a light weight cord or thread 4^a, defining the range of the small arm, and whereby the projectile can be quickly returned for reloading after each shot.

Trigger mechanism is employed for holding the spring compressed in readiness for release to propel the projectile, by swinging the trigger through proper pressure of a finger.

In the example illustrated, the trigger is cast in one piece of suitable metal. For this purpose, I preferably employ the same kind of lead (alloy) as utilized for the body as this material does not easily fracture and is more or less ductile so that the trigger can be restored to shape by bending when distorted by accident or through careless handling. In the embodiment shown, the trigger is composed of an elongated straight stem 5 at its outer end having an upwardly projecting forwardly inclined projectile holding finger or end 5^a, and at its inner end having a depending finger-receiving arm or finger 5^b, and an upwardly extending (usually) rearwardly inclined arm 5^c, usually flattened and formed near its upper end with a transverse perforation.

The body is cast with an upwardly extending socket 2^b opening through its under edge a short distance from the barrel and with a transverse perforation opening into this socket to receive the pivot pin 5^d by which the trigger is pivotally secured to the body. The pivot receiving arm 5^c extends upwardly into this socket and more or less snugly fits the side walls thereof, and the pivot pin 5^d passes through the perforation in trigger arm 5^c. When the trigger and body are assembled, the trigger finger 5^b forms an approximate downward continuation of the pivot arm 5^c and the trigger stem 5 extends forwardly below the barrel with the retaining finger 5^a extending upwardly in position to engage the under surface of the barrel.

To prepare the small arm for firing, the projectile is inserted on the barrel and utilized to compress the spring to the extent necessary to permit the retaining finger to swing up to the barrel in front of the projectile. The trigger will then hold the spring compressed. The trigger can be easily swung up to spring retaining position as the long stem 5 provides a convenient hand or finger hold for this purpose.

The trigger holds the spring compressed because of the location of the pivot 5^d approximately in the longitudinal axial line of the barrel with respect to the line of pull of the spring through the trigger on the said pivot, and yet the arrangement is such that slight movement of the finger 5^b requiring a minimum amount of muscular effort will

swing the trigger sufficiently to quickly free end 5^b from the projectile and permit expansion of the spring to discharge the projectile. The trigger is preferably not spring pressed, but more or less freely swingable through a limited range of movement. The frictional engagement of the arm 5^c with the socket walls and pivot pin provides a frictional or somewhat stiff joint, and it is advantageous in my construction to avoid the employment of a trigger spring, particularly as the finger does not have to overcome the power of a trigger spring when moving the trigger to release the spring, nor is it necessary to hold the trigger pressed down against a trigger spring to permit backward movement of the projectile past the trigger when the projectile propelling spring is being compressed.

The weight and balance of the small arm body combined with the trigger arrangement are such that the tendency of the small arm to be deflected from true aim by the effort exerted in moving the trigger in discharging, is reduced to the minimum, even in the hand of a small child.

I gain advantages by employing a rubber projectile not only because of the comparatively heavy weight thereof and the fact that the soft rubber will not mar and chip paint from the lead soldiers forcibly engaged thereby, but also because the soft rubber of the projectile permits locking of the projectile on the barrel under the dragging or holding influence of the trigger finger 5^a engaging the lower portion of the front end of the projectile while the powerful spring 3 is tending to drive the projectile forward. This peculiar action cannot be well illustrated by the drawings. When the propelling spring is held compressed by the projectile through the engagement of the trigger finger 5^a with the lower front portion of the projectile, the projectile becomes slightly tilted and distorted downwardly so that the projectile becomes approximately wedged or locked on the barrel, the lower front end of the projectile is stretched downwardly and the upper portion of the projectile is drawn tightly against the upper surface of the barrel. This deformation and wedging of the projectile on the barrel is of aid to the trigger in holding the propelling spring compressed and also in reducing the power needed to withdraw the trigger and release the projectile and spring. The tapered form of the projectile is of advantage, and furthermore in my construction the projectile can be placed on the barrel either end foremost with equal advantage.

It is evident that variations, changes and modifications can be resorted to without departing from the spirit and scope of the invention defined by the following claims, hence I do not wish to limit my invention to the exact disclosure hereof.

What I claim is:—

1. A toy small arm having a body composed of a solid metal stock and a solid metal barrel integral therewith and projecting therefrom, said stock having a trigger socket opening through its under edge near the barrel, a projectile-propelling spring loosely arranged on the barrel to propel a projectile slidable exteriorly on the barrel, and a trigger having a depending finger piece, an arm extending into said socket and pivoted to the stock, and an elongated forwardly extending stem with an upturned front end to hold the spring compressed.

2. A toy small arm comprising a stock and a barrel projecting therefrom and providing an annular exterior spring abutment approximately at the junction between barrel and stock, a projecting exterior spring-securing pin spaced from said shoulder, a coiled elongated projectile-propelling expansion spring on the barrel with its inner end wedged against said abutment by said pin, and spring holding and releasing trigger means.

3. A toy small arm comprising a stock, a barrel projecting therefrom and formed to exteriorly receive a hollow projectile, a coiled-projectile spring exteriorly arranged on said barrel, and a freely swingable trigger embodying an elongated stem arranged below and longitudinally of the barrel and at its forward end having a spring retaining projection and at its rear end having a depending finger and an upwardly extending arm pivoted to the stock.

4. A toy small arm comprising a stock, a barrel rigid therewith and adapted to exteriorly receive a hollow projectile, a coiled expansion spring on said barrel for propelling the projectile, and a trigger pivoted to the stock with the pivoted point approximately in the longitudinal axial line of the barrel, said trigger embodying a forwardly extending elongated stem at the rear having a finger piece and at the front having an upwardly extending spring retaining and releasing end, substantially as described.

5. A small arm of the hollow-projectile trigger-controlled propelling-spring type, embodying a stock and barrel cast in one piece of metal to provide weight and balance with the barrel formed to provide spring securing means and the stock formed to receive the trigger, said casting providing an exterior spring abutment, an exterior propelling spring on said barrel, means pressing an end thereof against said abutment, and a swingable trigger below the stock and barrel and having a forwardly extending arm provided with a holding finger.

6. A toy small arm comprising a stock, a barrel rigid therewith and formed to receive a hollow exterior projectile, a coiled expansion spring on the barrel to propel said

projectile, a spring securing pin fixed to the rear portion of the barrel and extending between convolutions of the spring near the rear end of the spring, and trigger mechanism for said spring.

7. A toy small arm comprising a stock, a rigid barrel, a coiled expansion spring on the barrel for propelling a projectile slidable exteriorly on the barrel, an elastic rubber projectile having a longitudinal bore to receive said barrel, and trigger mechanism having a holding finger to engage the front end of said projectile and hold the spring compressed with the projectile wedged or distorted on the barrel.

CHARLES WILLIAM BEISER.