Jan. 28, 1964 H. J. ASHLEY 3,119,385

REPEATING GUN FOR SHOOTING ELASTIC BANDS

Filed March 19, 1962 3 Sheets-Sheet 1



FIGURE 1

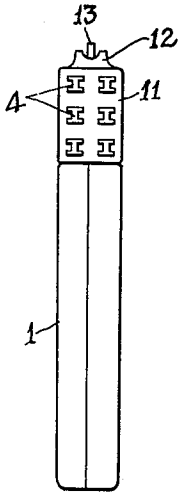


FIGURE 3

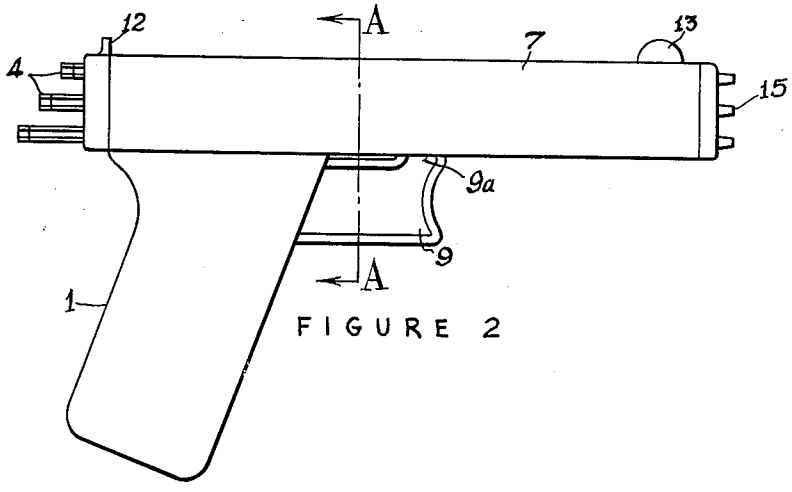


FIGURE 2

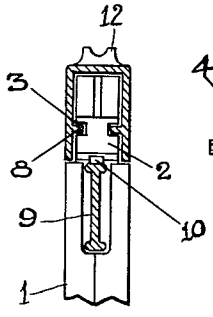


FIGURE 5

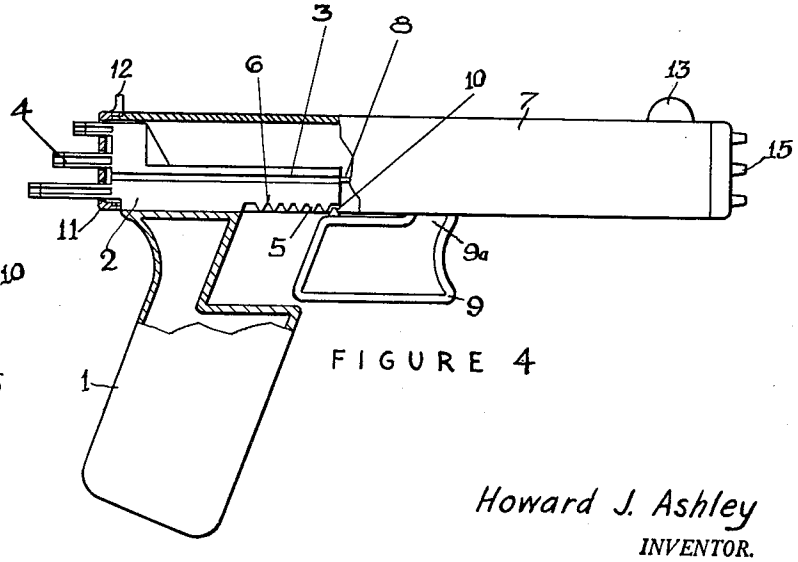


FIGURE 4

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Jan. 28, 1964 H. J. ASHLEY 3,119,385

REPEATING GUN FOR SHOOTING ELASTIC BANDS

Filed March 19, 1962 3 Sheets-Sheet 2

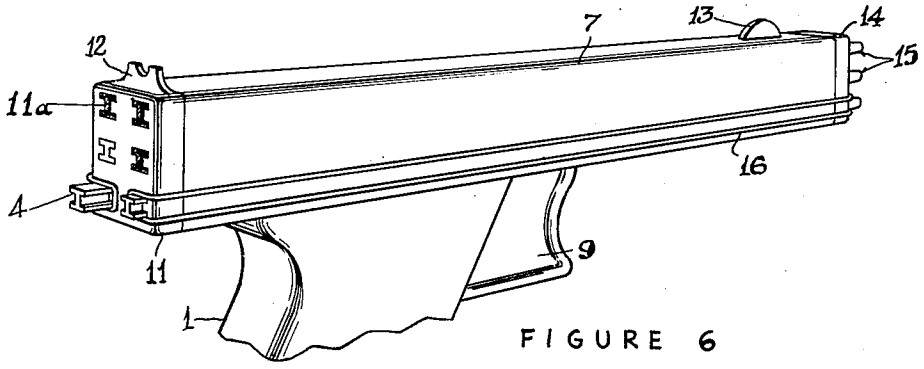


FIGURE 6

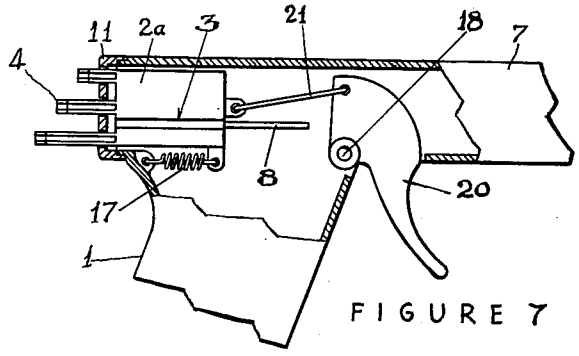


FIGURE 7

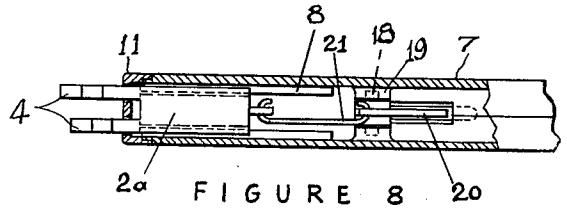


FIGURE 8

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Jan. 28, 1964 H. J. ASHLEY 3,119,385

REPEATING GUN FOR SHOOTING ELASTIC BANDS

Filed March 19, 1962 3 Sheets-Sheet 3

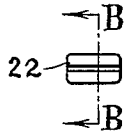


FIGURE 9



FIGURE 10

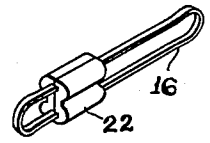


FIGURE 11

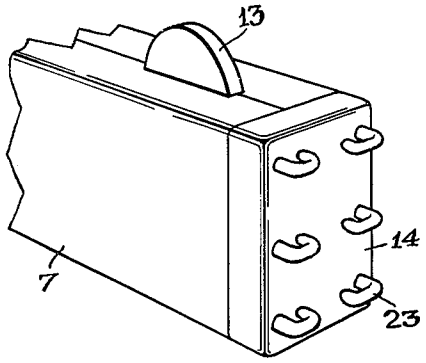


FIGURE 12

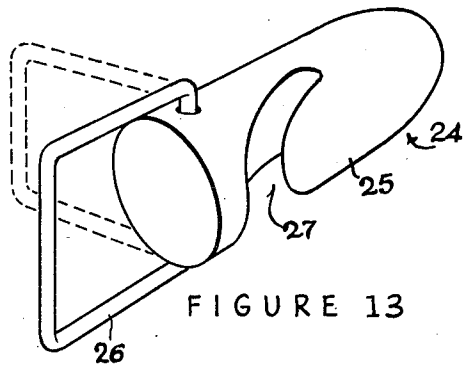


FIGURE 13

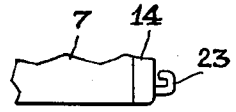


FIGURE 14

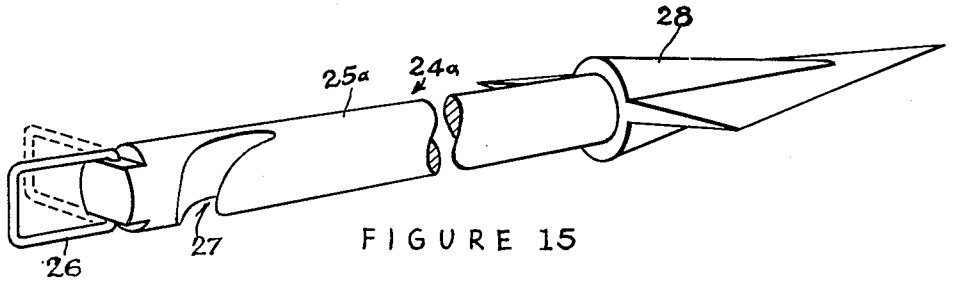


FIGURE 15

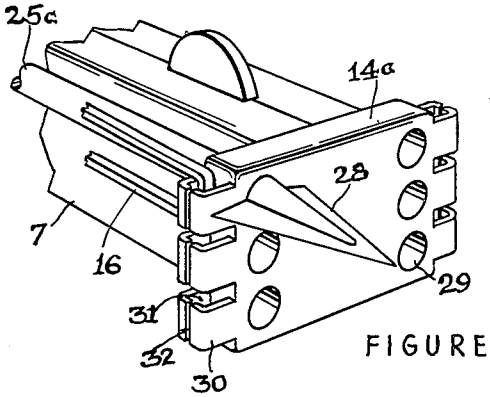


FIGURE 16

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United States Patent Office 3,119,385 Patented Jan. 28, 1964

3,119,385
REPEATING GUN FOR SHOOTING ELASTIC BANDS

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Filed Mar. 19, 1962, Ser. No. 180,703
6 Claims. (Cl. 124—19)

This invention relates to a toy gun, and more particularly to a toy piston adapted to discharge elastic bands.

The primary object of the present invention is to provide a toy pistol having means for holding a number of elastic bands under tension, in combination with a trigger-controlled barrel which is adapted to be operated by the pressure of one's finger to release and discharge the bands singly and in succession.

Another object of this invention is to provide a toy pistol of the kind characterized which is adapted to utilize elastic bands in the discharge of projectiles of the rigid type.

Other and further objects of this invention will be pointed out hereinafter or will be indicated in the appended claims or will be obvious to one skilled in the art upon an understanding of the present disclosure. For the purpose of this application, I have elected to show herein certain forms and details of a toy gun representative of this invention; it is to be understood, however, that the embodiment of my invention herein shown and described is for purposes of illustration only, and that therefore it is not to be regarded as exhaustive of the variations of the invention in the art.

In the accompanying drawing:

FIG. 1 is a plan view of a toy pistol embodying my invention;

FIG. 2 is a side elevational view of the same;

FIG. 3 is a rear elevational view of the same;

FIG. 4 is a side elevational view of the same, showing parts broken away and other parts in section;

FIG. 5 is a sectional view taken on the line A—A of FIG. 2;

FIG. 6 is a perspective view on an enlarged scale of the toy pistol, showing a part of the grip broken away, and also showing an elastic band held under tension and in position ready for release by the trigger-controlled means;

FIG. 7 is a side elevational view of a part of a toy pistol embodying another form my invention may assume, showing a part of the barrel and grip broken away and in section;

FIG. 8 is a plan view of that part of the toy pistol illustrated in FIG. 7, and showing parts broken away and in section;

FIG. 9 is a side elevational view of a pellet designed for attachment to an elastic band;

FIG. 10 is a sectional view taken on the line B—B of FIG. 9;

FIG. 11 is a perspective view of an elastic band having a pallet secured thereto, the two in combination constituting a projectile having a weight greater than the band alone;

FIG. 12 is an enlarged perspective view of the muzzle end of the toy pistol;

FIG. 13 is an enlarged perspective view of a rigid type of projectile adapted to be fired by means of an elastic band;

FIG. 14 is a detail plan view of a fragmentary part of the muzzle end of a toy pistol, showing the shape of a hook to which an elastic band is attached preparatory to the firing operation;

FIG. 15 is a perspective view on an enlarged scale, of a rigid type of projectile adapted to be discharged by means of my toy pistol, utilizing the tensioned elastic band for propulsion purposes; and

FIG. 16 is a perspective view of the muzzle end of a toy pistol adapted to discharge the projectile shown in FIG. 15.

Referring first to FIGS. 1 to 6, illustrating the preferred embodiment of my toy pistol, the numeral 1 designates a grip simulating portion comprising a pair of similarly shaped longitudinally vertically split halves secured together as by means of a suitable adhesive. Secured to and overlying the grip 1 is a pin supporting breech block 2 which is formed at its opposite sides with horizontal correspondingly positioned longitudinal grooves 3. Secured to the block 2 and extending rearwardly from the rear face or side thereof are a plurality of breech pins 4 which in the embodiment illustrated are six (6) in number. The pins are of different lengths, and in cross-section each is preferably H-shaped, although they may also embody other forms if so desired. As shown in FIG. 3, the pins are arranged in two (2) vertical rows, each of the three (3) pins of each row being uniformly spaced one from another. The forward end portion of the block 2 at its underneath side is formed with a plurality of equally spaced V-shaped ratchet-like teeth or protuberances 5 which are spaced one from another by notches 6, such teeth and notches being arranged in horizontal alignment. The teeth 5 and notches 6 are of uniform width, and they are operatively associated with the breech pins 4 in the operation of the device. The number of each of such teeth and notches is at least equal to the number of breech pins.

The barrel simulating portion of the toy pistol comprises two (2) similarly shaped shell-like sections which when arranged in assembled formation form a tubular barrel 7. The shell-like barrel sections have opposed lateral sides which extend longitudinally alongside the lateral sides of the breech block 2. The opposed sides of the barrel sections each have correspondingly arranged longitudinal tongues 8 on their inner surfaces which slidably fit in the grooves 3 of the block. The barrel 7 is adapted to be moved rearwardly and forwardly with respect to the breech block 2 and the grip 1. Secured to one of the shell-like sections of the barrel 7 is a depending trigger member 9 which is formed at its upper side near the rear end thereof with a protuberance or tooth 10 which is adapted to engage successively with the teeth of the breech block and also successively enter the notches 6 as the barrel is moved rearwardly. The trigger member 9 is secured at its forward end to the barrel 7 by a fairly slender connecting piece 9*a* which is sufficiently flexible to allow the tooth 10 of the trigger member to ride over the teeth 5 of the breech block as the barrel is moved rearwardly when the trigger member is pulled rearwardly by a rearward pressure applied thereto by one's finger.

My toy pistol is preferably constructed from polystyrene or other suitable plastic material which is slightly flexible, thereby making it possible for the rear end portion of the trigger member 9 to move up and down as the teeth 5 of the block are successively engaged by the tooth 10 of such trigger member when the barrel is moved rearwardly or forwardly with respect to the block.

Tightly fitting over and secured to the rear ends of the shell-like sections of the barrel 7 is a breech cap or closure member 11 having a plate-like portion which is formed with H-shaped openings 11*a* through which the breech pins 4 movably extend. Extending upwardly from the breech cap is a rear sight 12, and associated therewith is a front sight 13 secured to one of the sections of the barrel 7.

Tightly fitting over and secured to the forward ends of the shell-like sections of the barrel is a muzzle cap 14 which has a plurality of forwardly extending tapered muzzle pins 15 secured thereto. The muzzle pins correspond in number to and are arranged in substantially the same formation as the breech pins 4. The shell-like

barrel sections forming the tubular barrel 7 are maintained in asembled relationship by the breceh cap 11 and the muzzle cap 14, or by a suitable adhesive, or by a combination of both.

Preparatory to loading the pistol, the barrel 7 is adjusted to its extreme forward position with respect to the breech block 2 as shown in FIG. 4. When so adjusted, all of the breech pins 4 will be projecting rearwardly with respect to the breech cap 11 and the tooth 10 of the trigger member 9 will be positioned directly in front of and in engagement with the forward tooth 5. The pistol is loaded with a number of elastic bands 16 or resilient loops by successively hooking them onto the breech pins 4 and then stretching and hooking them onto corresponding muzzle pins 15. When fully loaded, there will be six (6) tensioned elastic bands extending longitudinally along the barrel 7, each hooked onto a breech pin and a correspondingly positioned muzzle pin. The tensioned elastic bands exert a rearward pull on the barrel, but the tooth 10 of the trigger member engaging with a tooth 5 of the block 2 normally holds the barrel against rearward movement until an additional pressure in a rearward direction is exerted by one's finger on the trigger member. In order to make possible the release of a band 16 at the breech end of the pistol, each time the trigger member is momentarily pulled rearwardly to cause the tooth 10 to ride over a tooth 5 of the block and thereby move the barrel rearwardly a distance equal to the width of such tooth, it is necessary that the breech pins 4 have predetermined different lengths. Thus the shortest pin 4 will have a length whereby it will be in a withdrawn position with respect to the rear surface of the breech cap 11 after the trigger member is momentarily pulled to cause the tooth 10 to ride over the forwardly disposed tooth 5 and become lodged in the forwardly disposed notch 6. Thus when the shortest breech pin has assumed a withdrawn position upon the initial rearward movement of the barrel, the elastic band then engaging with such pin will be released by the breech cap from such pin, and by reason of the inherent tension possessed by such band, it will be projected forwardly with considerable force. The next shortest breech pin 4 normally projects rearwardly from the rear surface of the breech cap 11 a distance approximately equivalent to the width of two (2) of the teeth 5, and similarly, the other breech pins having different predetermined lengths will make it possible to release an elastic band each time the trigger member 9 is pulled momentarily to cause the tooth 10 to ride over a succeeding tooth 5. So as to prevent an elastic band from becoming held in a pinched position between the breech cap 11 and the breech pin 4 then supporting such band, it has been found advisable to give the breech pins a cross-sectional H-shape. Thus as the breech cap moves rearwardly with the barrel to release a band from a pin, that part of the cap located between the inner parallel portions of the H-shaped opening will engage with the band and free it from the pin as such pin moves toward a withdrawn position with respect to the rear surface of the breech cap.

In the embodiment of my invention shown in FIGS. 7 and 8, another mechanism is employed in the release of the elastic bands. In the combination illustrated, the grip 1 and the barrel 7 are rigidly secured together, and a breech block 2*a* is mounted in the barrel for rearward and forward reciprocating movement. The breech pins 4 normally project rearwardly through the breech cap 11, and each is adapted to be withdrawn to release an elastic band upon the predetermined movement in a forward direction of the breech block. A coil spring 17 connected at its ends to the forward end of the block and to the grip 1 normally holds the block 2*a* in a rearwardly disposed position with all of the breech pins 4 projecting rearwardly of the breech cap 11, as shown in FIGS. 7 and 8.

Pivotally mounted on a pivot pin 18 supported by opposed bosses 19 on the inner surfaces of the barrel sections is a trigger 20, which is connected at a point above such pivot pin by a link 21 to the forward end of the breech block. The trigger 20 is normally held by the coil spring 17 in a cocked position. When the depending finger piece of the trigger is moved rearwardly by the rearward pressure of one's finger the upper end of such trigger is swung forwardly to pull the block in the same direction. As the block moves forwardly, the breech pins are successively withdrawn, thereby causing the elastic bands to be successively fired. When the pressure on the finger piece of the trigger is released, the spring 17 returns the block 2*a*, the breech pins 4 and the trigger 20 to their normal positions for subsequent reloading.

In FIGS. 9, 10 and 11, I have illustrated a metal projectile 22, which is adapted to be secured to an elastic band 16. The projectile comprises two (2) similar sections secured together by suitable means such as a tongue and groove arrangement. The sections of the projectile are formed with opposed longitudinal grooves, which when the sections are in assembled relationship, form longitudinal openings through which the elastic band extends. The metal projectile 22 is made from heavy metal such as lead, and when secured to an elastic band, it gives the latter added weight to increase the flight thereof as well as to make possible more accuracy in firing.

In FIGS. 12 and 14, I have shown the muzzle end portion of a gun which is adapted to utilize elastic bands in the firing of projectiles of the type illustrated in FIG. 13. In this embodiment of my invention, the muzzle cap 14 secured to the barrel 7 is provided with a plurality of forwardly projecting hooks 23 which are arranged preferably in the same general formation as the breech pins, such hooks having their inner ends spaced sufficiently from the said cap to permit elastic bands to be connected thereto when loading the gun. A projectile 24, shown in FIG. 13, is adapted to be fired from a gun of the type illustrated partially in FIG. 12. The projectile 24 comprises a short metal projectile body 25 of suitable length, having a structurally rigid metal ring or hoop 26 pivotally secured to its rear end. The body 25 is formed with a wide rearwardly opening notch 27 through which an elastic band may be passed to attach the projectile 24 releasably to the band. In loading the gun, the ring 26 of the projectile is placed over and connected to a breech pin, after which the tensioned band while connected to the projectile is hooked onto a corresponding hook 23 at the muzzle end of the gun. Upon releasing the ring 26 from the breech pin in the manner heretofore described, the elastic band hurls the projectile 24 forwardly along the side of the gun barrel and forwardy thereof. The elastic band being hooked onto the hook 23 is held against detachment from the gun, but the projectile upon releasing itself from the band continues to travel forwardly as an independent missile.

As shown in FIG. 15, a projectile 24*a* may be formed with an enlongated body or shank 25*a* having a pointed head 28 thereon. This particular projectile is adapted to be fired from a gun of the type described, such gun having a muzzle cap 14*a* of the kind shown in FIG. 16. The muzzle cap 14*a* is sufficiently wide to extend laterally well beyond the sides of the barrel, and formed in each of the laterally disposed portions of such cap is a vertical row of openings 29 of the same size which are slightly wider in diameter than the diameter of the shank 25*a* of the projectile 24*a*. The pivoted ring or hoop 26 at the rear end of the projectile body 25*a* is no wider than the diameter of an opening 29, thus making it possible for the projectile to be propelled through such opening. The lateral portions of the muzzle cap 14*a* are formed with a recessed projection 30 for receiving and holding elastic bands 16 used in the propulsion of the projectiles 24*a*. The recessed projections 30 are each formed with a vertical band receiving opening 31 and a vertical slot 32 through which a band may be inserted to hook such band

onto the projection. The openings 29 and the band holding projections 30 are preferably arranged in the same general formation as the muzzle pins 4. A projectile 24a is fired in the same manner as the projectile 24.

What I claim is:

1. In a toy gun for shooting elastic bands, a hand grip, a barrel secured to the grip, a breech member on the rear end of the barrel having a plurality of openings arranged in a predetermined formation, a muzzle member secured to the forward end of the barrel and having a plurality of forwardly projecting band supporting members arranged in substantially the same formation as the openings in the breech member, a pin supporting member mounted for rearward and forward recipricating movement in the barrel, a plurality of rearwardly extending pins of predetermined different lengths carried by and extending rearwardly from the pin supporting member, the said pins normally extending rearwardly through the openings in the breech member, the said pins being successively withdrawn with respect to the breech member when the pin supporting member is moved forwardly, the said pins and the band supporting members of the muzzle member being adapted to hold releasably a plurality of tensioned elastic bands extending alongside the barrel, a trigger pivotally supported on the barrel, link means connecting the trigger and the pin supporting member, whereby the pin supporting member may be progressively moved forwardly to move successively the pins to withdrawn positions with respect to the breech member to release successively the bands, and spring means for returning the pin supporting member and the pins rearwardly.

2. In a toy gun, a barrel having a breech member on its rear end, the breech member having a plurality of openings arranged in predetermined formation, a hand grip connected to the barrel, a pin supporting member mounted for longitudinal adjustment in the rear portion of the barrel, a plurality of rearwardly extending pins of different lengths carried by the pin supporting member and arranged to extend normally through the openings in the breech member and rearwardly thereof, the pins having predetermined different lengths whereby they will be successively withdrawn with respect to the breech member as the pin supporting member is longitudinally adjusted forwardly in the barrel, a muzzle member secured to the forward end of the barrel, the muzzle member having laterally disposed portions extending outwardly from the barrel, the said portions having a plurality of openings arranged in substantially the same formation as the openings of the breech member, the said portions also having laterally projecting members for holding tensioned elastic bands, and a plurality of rigid projectiles having elongated shanks extending along the barrel and slidably supported in the openings of the muzzle member, the projectiles having notch means for detachably receiving tensioned elastic bands connected to the projecting members, the said elastic bands urging the projectiles forwardly, and said shanks having movable members at their rear ends releasably connected to the pins.

3. In a toy gun, a barrel having a breech member on its rear end, the breech member having a plurality of openings arranged in predetermined formation, a hand grip connected to the barrel, a pin supporting member mounted for longitudinal adjustment in the rear portion of the barrel, a plurality of rearwardly extending breech pins of different lengths carried by the pin supporting member and arranged to extend normally through the openings in the breech member and rearwardly thereof, the pins having lengths whereby they will be successively withdrawn with respect to the breech member as the barrel and pin supporting member are longitudinally adjusted in certain directions with respect to each other, a muzzle member secured to the forward end of the barrel, a plurality of forwardly projecting hooks on the muzzle member arranged in substantially the same formation as the breech pins, the said hooks being adapted to hold tensioned elastic bands detachably fastened to projectiles releasably held in restrained positions by the breech pins.

4. In a toy gun for shooting elastic bands, a hand grip, a pin supporting member secured to and mounted on the hand grip, a plurality of rearwardly extending band supporting pins of different lengths arranged in a certain separated formation on the pin supporting member, a barrel mounted for rearward and forward reciprocating movement on the pin supporting member, the barrel having a closure member on its rear end, the closure member having a plurality of openings arranged to receive the pins slidably, the pins being adapted to extend rearwardly of the closure member and such pins having predetermined different lengths whereby when the barrel is progressively moved rearwardly with respect to the pin supporting member, the pins will become successively withdrawn with respect to the closure member, a plurality of forwardly projecting band supporting members on the forward end of the barrel, the pins and the band supporting members being adapted to hold releasably a plurality of tensioned elastic bands, and trigger means for moving the barrel rearwardly to release the bands from the pins.

5. The combination set forth in claim 4, wherein the pin supporting members on the forward end of the barrel are arranged in substantially the same formation as the pins.

6. In a toy gun for shooting elastic bands, a hand grip, a pin supporting member secured to and mounted on the hand grip, a plurality of rearwardly extending band supporting pins of different lengths arranged in a certain separated formation at the rear side of the pin supporting member, a barrel mounted for rearward and forward movement on the pin supporting member, the barrel having a breech cap on its rear end, the breech cap having a plurality of openings adapted to receive the pins slidably, the pins being adapted to extend rearwardly of the breech cap when the barrel is in a certain position with respect to the pin supporting member and the pins having such predetermined different lengths that when the barrel is progressively moved rearwardly, the pins will become successively withdrawn with respect to the breech cap, a muzzle cap on the forward end of the barrel, the muzzle cap having a plurality of forwardly extending pin supporting projections thereon arranged in substantially the same formation as the breech pins, the breech pins and the projections being adapted to hold releasably a plurality of tensioned elastic bands extending longitudinally alongside the barrel, a plurality of uniformly spaced teeth arranged longitudinally on the pin supporting member, and a resilient trigger member carried by the barrel and having a projecting element adapted to engage successively with and become released from the teeth as the trigger member is actuated, whereby the rearward movement of the barrel may be controlled to release successively the bands from the breech pins.

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