July 23, 1963 M. E. HIRSCH ETAL 3,098,474

TOY REPEAT FIRING CAP GUN WITH PERCUSSIVE FIRING NOISE AND SIMULATED USED SHELL EJECTION

Filed April 15, 1960 4 Sheets-Sheet 1

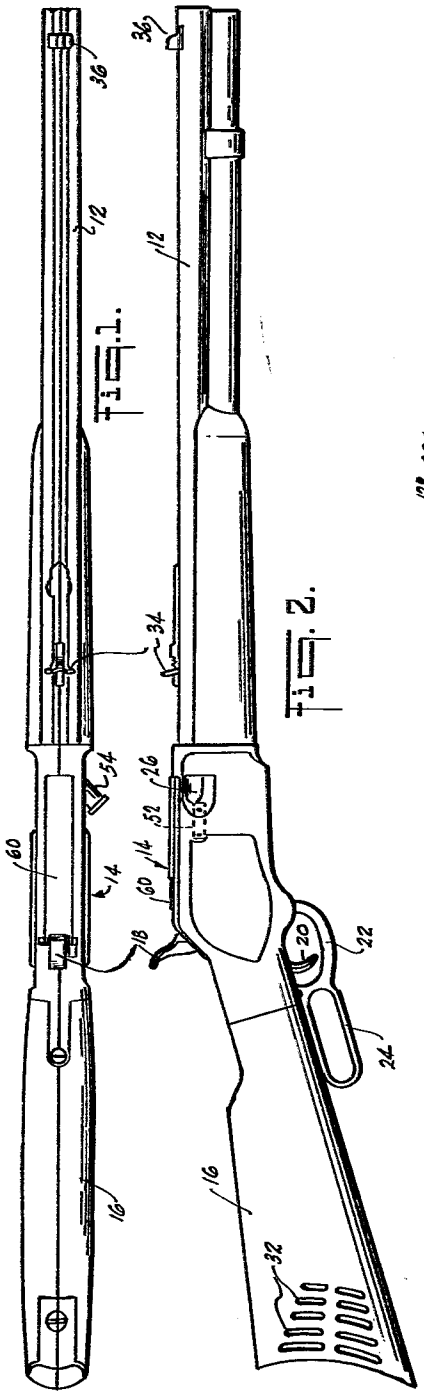

Fig. 1.

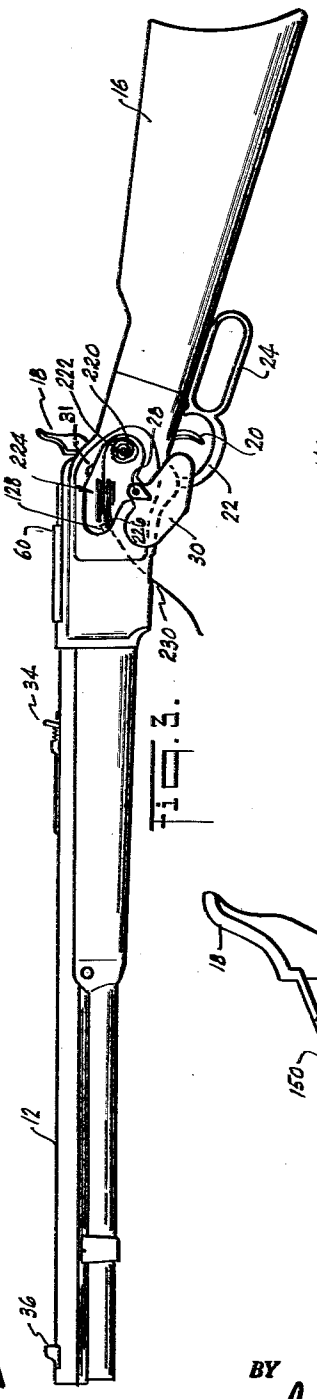

Fig. 2.

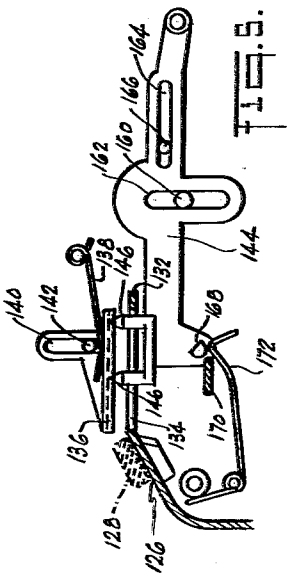

Fig. 3.

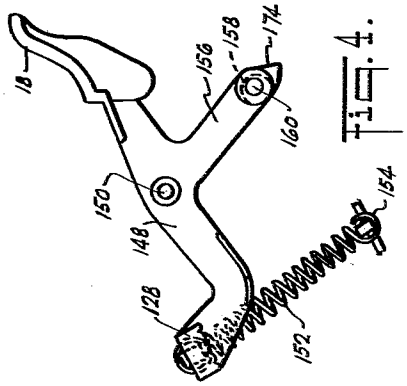

Fig. 4.

Fig. 5.

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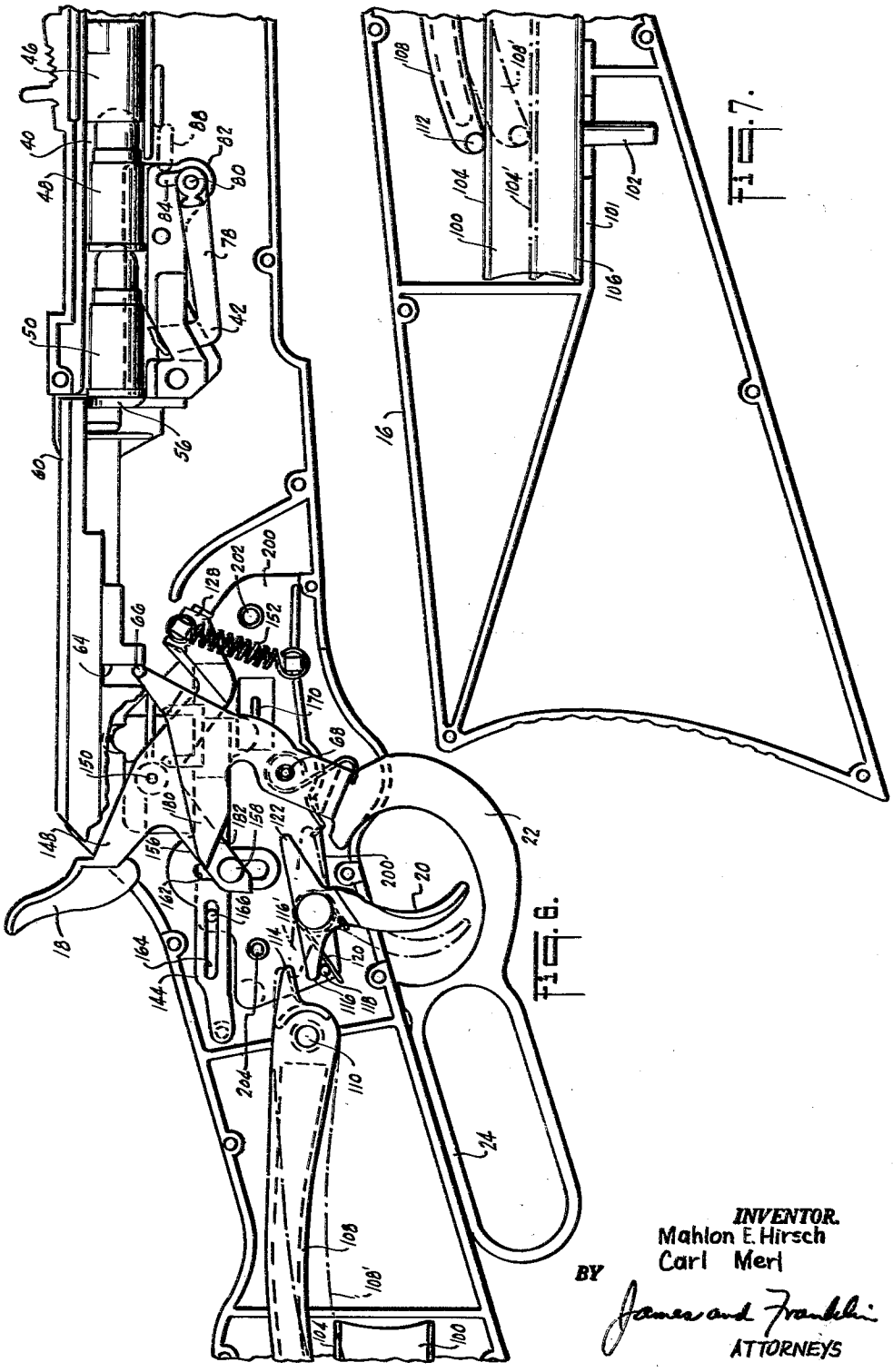

FIG. 6.

FIG. 7.

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TOY REPEAT FIRING CAP GUN WITH PERCUSSIVE FIRING NOISE AND SIMULATED USED SHELL EJECTION

Filed April 15, 1960 4 Sheets-Sheet 3

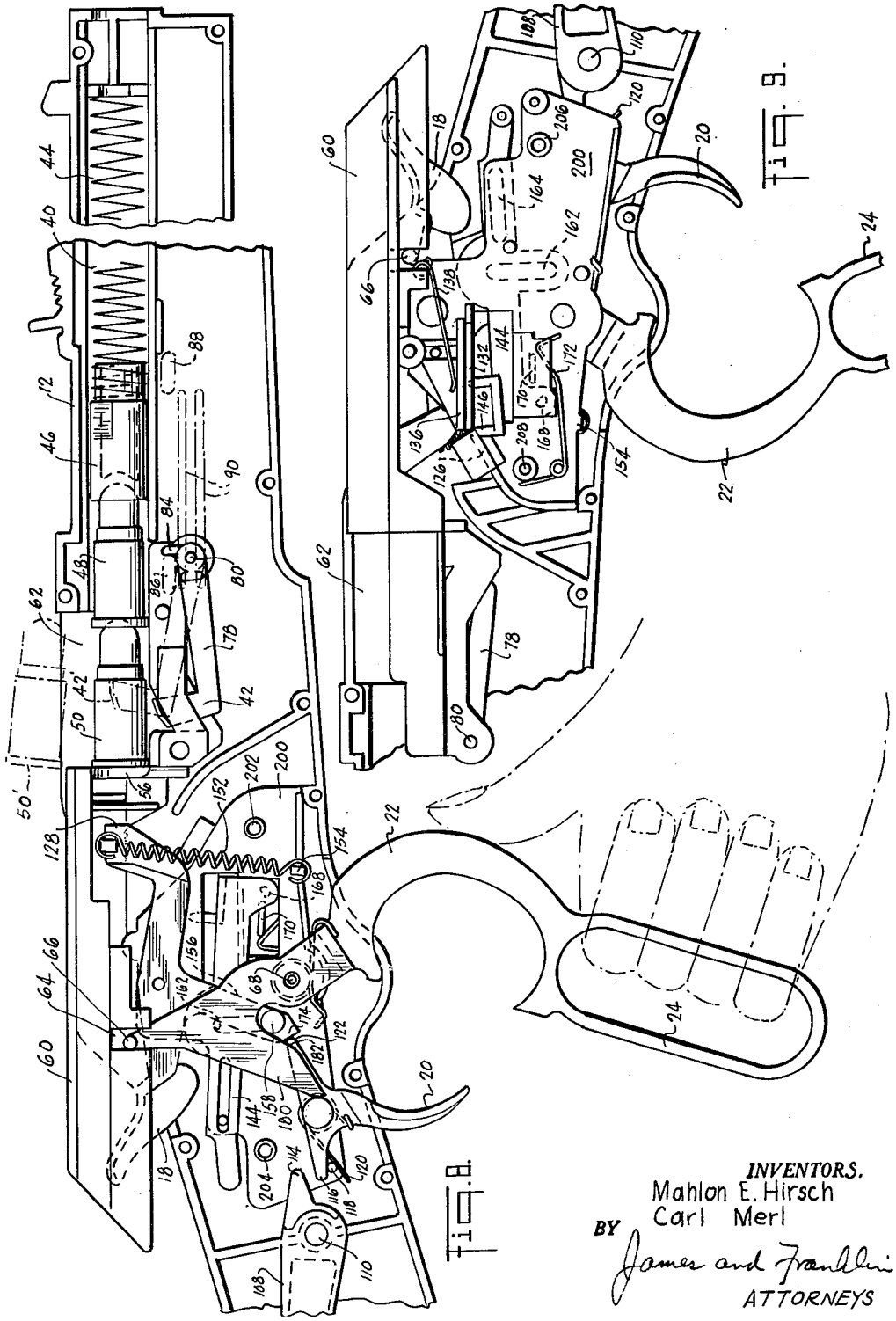

Fig. 8.

Fig. 9.

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TOY REPEAT FIRING CAP GUN WITH PERCUSSIVE FIRING NOISE AND SIMULATED USED SHELL EJECTION

Filed April 15, 1960 4 Sheets-Sheet 4

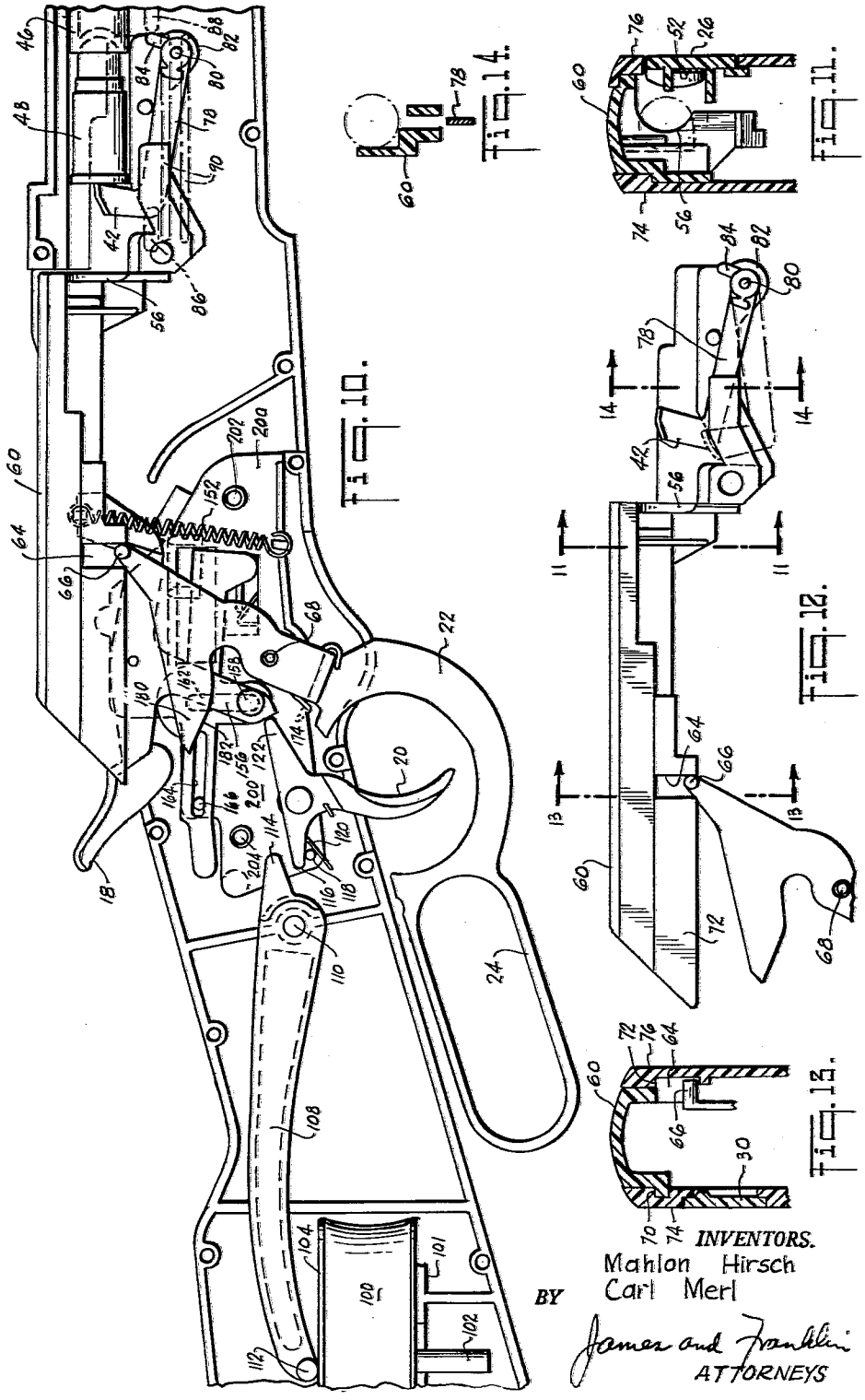

Fig. 10.

Fig. 14.

Fig. 11.

Fig. 12.

Fig. 13.

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United States Patent Office 3,098,474 Patented July 23, 1963

3,098,474

TOY REPEAT FIRING CAP GUN WITH PERCUSSIVE FIRING NOISE AND SIMULATED USED SHELL EJECTION

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Filed Apr. 15, 1960, Ser. No. 22,493
17 Claims. (Cl. 124—2)

This invention relates to toy guns, and more particularly to a realistic gun simulating percussive firing noise, a subsequent whining or ricochet sound, and also cartridge ejection.

The primary object of the present invention is to generally improve toy guns. Altho the invention is shown applied to a cap gun, many features of the invention are applicable to other types of toy gun.

One main object of the invention is to produce not only the usual percussion firing noise, but also a subsequent sound such as the whine of a bullet in flight, or a ricochet sound as it lands. These sounds are for convenience hereinafter referred to as "aftersound."

Another main object of the invention is to simulate the ejection of discharged cartridges. The dummies used for this purpose may simulate complete cartridges or empty shells, but for simplicity and brevity either type may be referred to herein as a "shell." In accordance with a further feature and object of the invention, a magazine is provided capable of holding a large number of such shells which are successively ejected, one for each cocking of the gun.

Still further objects of the invention center about the cap firing mechanism, and are to provide an improved cap firing mechanism which is dependable in operation, and which produces a maximum explosive sound from the firing of the cap. This is aided by an accurate cap feed, and a self-cleaning arrangement of the parts. In accordance with further features of the invention, the hammer may be cocked either by using the regular cocking lever, or by means of the finger tab on the hammer. The anvil slopes downward, and the used cap strip is discharged downward, thereby avoiding interference with the shell ejection at the top of the gun, and also making the mechanism self-cleaning.

The shell ejection mechanism per se, is not claimed herein, it being claimed in a copending divisional application, Serial No. 173,514, filed February 15, 1962, and entitled "Toy Gun." The present application is directed to the cap firing mechanism either alone or in combination with shell ejection and/or means to produce an aftersound.

To accomplish the foregoing general objects, and other more specific objects which will hereinafter appear, the invention resides in the toy gun elements and their relation one to another, as are hereinafter more particularly described in the following specification. The specification is accompanied by drawings in which:

FIG. 1 is a plan view of a toy rifle embodying features of the invention;

FIG. 2 is a side elevation thereof;

FIG. 3 shows the opposite side of the gun;

FIG. 4 shows the hammer lever;

FIG. 5 shows the cap strip feed dog and holding down shoe;

FIG. 6 is a partial side elevation with one side of the gun removed to expose the mechanism;

FIG. 7 is a similar view showing the rear portion of the stock of the gun, as a continuation of the left end of FIG. 6;

FIG. 8 is a view shifted toward and including the muzzle of the gun, and shows the parts in cocking and shell ejecting relation;

FIG. 9 shows the opposite side of the cap firing mechanism in cocking position;

FIG. 10 is a view generally similar to FIG. 6 again showing the parts in cocked relation, but after partial restoration of the cocking lever;

FIG. 11 is a fragmentary transverse section through the shell loading door, taken approximately in the plane of the line 11—11 of FIG. 12;

FIG. 12 shows the slide separated from the gun;

FIG. 13 is a fragmentary section thru the slide, taken approximately in the plane of the line 13—13 of FIG. 12; and

FIG. 14 is a fragmentary section thru another part of the slide, taken approximately in the plane of the line 14—14 of FIG. 12.

Referring to the drawing, and more particularly to FIGS. 1, 2, and 3, the gun is here shown resembling a toy rifle comprising a simulated barrel 12, mechanism housed in a breech portion generally designated 14, and a stock 16. The hammer is concealed, but has a projecting finger tab 18. The trigger 20 is disposed within a trigger guard 22 forming part of a cocking lever 24. Simulated shells may be loaded into the gun through a door 26 (FIG. 2). The present gun is a cap gun, and a new supply of caps may be loaded into the gun through another door 30 (FIG. 3) on the other side, pivoted at 28 so that it may be turned down to the open position shown. The stock 16 has openings 32 which act as sound egress openings for the after-sound. For improved appearance the gun is provided with sights, indicated at 34 and 36.

The shell ejection mechanism may be described with reference to FIGS. 6, 8, and 10–13. The gun has a magazine 40 to receive a quantity of shells. There is a shell ejector 42 at the breech portion of the gun. A spring 44 (FIG. 8) is housed in the forward part of the magazine and urges a pusher 46 rearwardly. This bears against and urges the shells 48, 50 toward the ejector 42. While only two shells are shown, it will be understood that many more may be received in the magazine, and in the particular case here shown the magazine holds eleven shells. These have nose or bullet portions, and the magazine holds still more shells when the nose portions are omitted from the dummies as though simulating empty shells.

The gun is additionally provided with means, in this case the cocking lever 24, to cause the ejector 42 to move up from the solid line position 42 to the broken line position 42′ (FIG. 8) so that it ejects the end shell, as indicated by the change from the solid line position 50 to the broken line position 50′. At this time the spring 44 feeds the next shell 48 from the magazine to the ejector 42. It is arrested by the ejector in its raised position, as shown in FIG. 10, but moves back further when the ejector 42 is dropped to its lower position, as shown in FIG. 6. This takes place when the cocking lever is restored all the way back to the position shown in FIG. 6. In FIG. 10 the cocking lever has not been restored fully to rest position.

In the present gun the simulated barrel 12 serves as the magazine 40 which receives the shells. The spring 44 is a light or easily compressible helical spring which is longer than the barrel when extended. The loading door indicated at 26 in FIG. 2 is shown in section in FIG. 11, and in the present gun it is carried by a leaf spring 52 which extends rearward inside the door, as shown in FIG. 2. The door may be pushed inward by a shell as the shell is being loaded into the magazine, this being done as indicated at 54 in FIG. 1. The outside of the door is channeled to facilitate this operation. The shells are simply pushed one after another into the magazine, thereby compressing the shell feed spring 44. The rearmost shell is

held against backward movement by a ledge 56 in the slide, which ledge engages the remote edge or rim of the shell.

Reverting to FIGS. 1 and 2, the breech portion of the gun is closed at the top by means of a slide 60, which is there shown in its forward or closed position. In FIGS. 8 and 9 the slide 60 has been moved to its rear or open position, thereby providing a shell ejection opening at 62. The end shell 50 is carried in a part of the slide 60 and is thus automatically moved back to the opening as the opening is formed. The cocking lever 24 moves the slide 60, and through it actuates the ejector 42.

Referring to FIG. 12, the slide 60 has an upright notch 64 which receives a stud 66 formed at the upper end of the cocking lever, the latter being pivoted at 68. In this way oscillation of the cocking lever causes reciprocation of the slide. The slide is guided in mating guides formed in the sides of the gun body, as will be clear from inspection of FIG. 13, which shows stud 66 in slot 64, while the slide 60 has rails 70 and 72 riding in ways formed in the side walls 74 and 76.

In the structure here shown the ejector 42 is pivoted on and slides back and forth with the slide 60. The ejector 42 (FIG. 12) is formed at the rear end of an arm 78 which is pivoted on the slide at trunnions 80. The parts 42 and 78 are preferably a die casting which further includes a hub 82 with a short upstanding finger 84. This engages stationary abutments formed integrally with the molded sides of the gun at the ends of the travel of the slide, thereby raising or lowering the ejector 42. These stationary abutments are shown at 86 and 88 in FIG. 8, and the abutment 86 is there just coming into operation. Specifically the cocking lever 24 has been pulled nearly but not wholly down; it has moved the slide 60 nearly but not wholly back; and the upstanding finger 84 has just reached abutment 86. Slight additional rearward movement of the slide turns the ejector upward to the broken line position, and so ejects the shell.

In FIG. 10 the cocking lever 24 has been moved nearly but not wholly back to rest position. The ejector 42 is still in raised position, and the upstanding finger 84 has just encountered the stationary abutment 88. The remaining forward movement of the slide moves the ejector 42 from the raised position shown in FIG. 10 to the lowered position shown in FIG. 6. At this time the magazine spring and its pusher 46 move the rearmost shell back over the ejector 42, as shown in FIG. 6, and the rearward motion is arrested by the stop 56 previously mentioned, this being a part of the slide located at the forward end of the cover portion of the slide. Later when the slide is moved back by the cocking lever, as shown in FIG. 8, a shell bearing against stop 56 is necessarily exposed at the discharge opening 62 then formed at the top of the gun, because the rearmost shell is ahead of the cover portion 60.

In FIGS. 8 and 10 attention may be called to the short guide rails 90. These are molded integrally with the side walls of the gun, and they receive the ends of the trunnions 80 previously referred to. They guide the forward end of the slide, and supplement the ways 70, 72 shown in FIG. 13 which receive and guide the rear portion of the slide.

In the present case the entire slide (FIG. 12) is a single piece of molded plastics material, except for the ejector 42, which is a single piece of die cast metal. The rear portion of the slide has a section somewhat like an inverted but unsymmetrical U, as shown in FIG. 13. The ejector portion has an L section, as shown in FIG. 14. The cocking lever 24 and trigger guard 22 are also a single piece of die cast metal.

The mechanism for producing the after-sound may be described with reference to FIGS. 6, 7, and 10 of the drawing. For this purpose the gun includes a sound producing means 100. The trigger 20 stores energy in the sound producing means, and this is automatically released following the trigger actuation. In the present case the sound producing means consists of a bellows the top 104 of which is compressible between the solid line position shown in FIG. 7 and the broken line position 104'. A conventional sound producing reed 102 is connected to the bellows, and in the present case the reed is so faced that it is silient during compression of the bellows, but sounds during expansion of the bellows. The bellows normally expands, as by use of resilient side walls, or by placing a compression spring between the top 104 and the bottom 106 of the bellows.

Referring now to FIG. 10 there is a linkage between the bellows 100 and the trigger 20, so that the trigger will operate the bellows. More specifically there is a lever 108 pivoted at 110. The rear end of this lever bears downwardly on the top wall 104 of the bellows, as shown at 112, and the lever may be provided with a transverse cylindrical portion for this purpose. The forward end 114 (FIGS. 6 and 10) of the lever is disposed in the path of a branch 116 of the trigger 20. This branch acts also as a stop finger which bears against a stationary stop 118 to limit the forward motion of the trigger caused by trigger restoring spring 120. The other branch 122 of the trigger acts as the sear which holds the hammer in cocked relation, as shown in FIG. 10.

When the trigger is pulled the branch 116 rises, as shown by the change from the solid line position to the broken line position 116' in FIG. 6, thereby tilting the lever 108 from the solid line position to the broken line position 108'. This compresses the bellows as shown in broken lines at 104', 108' in FIG. 7. There is no sound at this time, but when the trigger is released the bellows expands, and a sound is produced. The nature and the delayed timing of this sound simulate the whine of a bullet in flight or the ricochet sound of a bullet landing and deflecting.

If desired, considerable lost motion may be provided between the trigger branch 116 and the forward end 114 of the lever, as here shown, and this lost motion is made sufficient for sear 122 (FIG. 10) to release the hammer, in which case the use of the aftersound feature becomes optional. Specifically, a child wishing to fire the gun without after-sound may pull the trigger only far enough to fire the gun. However, when after-sound is to be produced, the trigger is pulled all the way back and released.

The lever 108 in the present case is molded out of a plastics material. The sides of the stock are separately molded and later cemented together in edge to edge relation. The said sides are integrally molded with a support wall 101 for the bellows. At least one side of the stock has sound discharge openings, here shown at 32 in FIG. 2.

The cap firing mechanism may be described with preliminary reference to FIG. 3 of the drawing. In this figure a roll 220 of cap strip is supported on a fixed short open-ended rod 222 projecting from a stationary support wall on which various parts of the mechanism are mounted. The cap strip is fed horizontally at 224 to a stationary anvil 226 and movable hammer 228. The used cap strip moves downward and is discharged at 230. This downward discharge avoids interference with the shell ejecting mechanism disposed directly thereabove. It also helps clear the mechanism of the exploded bits of paper resulting from the explosion of caps. The parts exposed in FIG. 3 are normally concealed by the door 30 which is pivoted at 28 by a yieldable spring pivot. The edge of the door and the door opening may be stepped so that the door is flush when closed, as shown at the left of FIG. 13. At 31 in FIG. 3 the side wall above the door is recessed with a finger notch to facilitate lifting and turning the door to open position.

Referring now to FIG. 5 the cap strip (not shown) moves over a stationary support plate 132, this being longitudinally slotted at 134. The support plate leads directly to the stationary anvil 126, against which the

hammer 128 strikes. The plate and anvil are integral with one another and with a vertical support or frame plate, not shown in FIG. 5.

A cap hold-down shoe 136 is disposed over the support plate 132, and is provided with resilient means 138 urging the shoe downward. Its veritcal movement is accommodated by a slot 140 which receives a fixed pin 142 projecting from the main stationary frame plate of the mechanism. The support plate 132 and anvil 126 are preferably die cast integrally with, and project sidewardly from, the said frame plate, which is not shown in FIG. 5 but is shown in FIGS. 6, 8, 9 and 10.

The mechanism further includes a cap feed dog 144 having at least one, but preferably two, upright spaced feed pins 146. These are spaced at the spacing between the perforations in the perforated cap strip. The feed pins 146 pass through the slot 134 to reach the hold-down shoe 136, and the latter may be provided with a shallow longitudinal groove to receive the upper ends of the pins 146.

Referring now to FIG. 4, the hammer 128 is cast integrally with, and projects sidewardly from, a hammer lever 148 pivoted at 150. The finger tab 18 is formed at the other end of lever 148. The hammer 128 is urged down by a suitable hammer spring, which in the present case is a pull spring 152 anchored at 154. In addition, the hammer is so operatively connected to the cap strip feed dog as to give the feed dog a four way motion, with the dog raised during cocking of the hammer, and lowered during firing of the hammer.

In the specific case here shown the hammer lever 148 has an additional cam follower arm 156 having a cam follower 158 on one side and a stud 160 on the other. It also has a surface 174 which is engaged by the sear of the trigger.

Reverting to FIG. 5, the said stud 160 is received in an upright slot 162 in the feed dog 144, and this causes the longitudinal feed movement of the feed dog. The feed dog also has a horizontal slot 164 which receives a stationary stud 166, thereby guiding the rear portion of the feed dog.

The forward end of the feed dog has a sidewardly projecting stud 168 which cooperates with a stationary guide 170. During feed movement of the feed dog, the stud rides over the guide 170, and this holds the pins 146 in raised position, safely thru the holes in the cap strip by a substantial amount, the feed pins having a length of about ¼ inch. The hold-down shoe 136 rises to accommodate this deep penetration. The cap strip is moved forward, and the guide 170 is slightly shorter than the travel of the dog so that the dog drops at the end of its travel, thereby disengaging it from the cap strip. Preferably it is forced down by the hammer stud which reaches the lower end of slot 162, as will be seen in FIGS. 8 and 10. During the return movement of the dog the stud 168 remains beneath the guide 170. However, toward the end of its return movement the stud rides on a wire spring 172 which acts as a cam, and this raises the feed dog so that it again penetrates the cap strip preparatory to the next feed movement. The spring 172 yields for passage of stud 168. In this way the feed dog is given its (approximate) four way movement.

Referring now to FIG. 6 of the drawing, hammer lever 148 is pivoted at 150 and carries hammer 128 which is pulled down by hammer spring 152. The arm 156 of the hammer lever engages vertical slot 162 of the feed dog 144. The latter additionally has the horizontal guide slot 164 cooperating with the stationary stud 166. The guide which holds the feed dog raised during its feed movement is shown at 170.

Referring now to FIG. 8, the hammer 128 has been raised to its cocked position and the feed dog 144 has been moved forward. Its stud 168 has moved beyond the stationary guide 170, and has been moved down by the hammer stud in slot 162. This forward and dropped position of the feed dog is also shown in FIG. 9 of the drawing, looking from the opposite side of the gun, and this view better shows the spring wire cam 172 which restores the feed dog to raised position when it is moved back.

As so far described, the gun could be cocked by simply pulling the finger tab 18 of the hammer down. This is so because the cap strip feed motion is taken from the hammer lever. When the hammer is cocked, the sear 122 of the trigger 20 bears against the lower end part 174 of the branch or arm 156 of the hammer lever (FIG. 10). The hammer spring 152 is now under maximum tension. It will be evident that by pulling the trigger 20 the sear 122 moves down, thus freeing the hammer lever to explode the cap positioned on the anvil. During this firing movement of the hammer the feed dog moves up through the next holes in the cap strip. In this way the gun may be fired by using finger tab 18 and without resort to the main cocking lever 24. When the gun is fired in this fashion there is no shell ejection. The aftersound may be produced or not, depending on whether the trigger is pulled all the way or only partly back, all as previously explained.

However, in normal operation the hammer is cocked by the action of the cocking lever 24, so that each firing of the gun is followed by ejection of a shell. The way this is done may be described with reference to FIGS. 6 and 8 of the drawing. The cocking lever 24 is pivoted at 68 and extends upward to the pin 66 which reciprocates the slide 60, all as previously described. The upward extension of the cocking lever has a rearwardly directed branch 180, the lower edge 182 of which acts as a cam for cocking the hammer lever. Specifically it cooperates with a cam follower 158 projecting from the cam follower arm 156. In FIG. 6 the gun is in rest position. In FIG. 8 the cocking lever 24 has been pulled downward and forward, thereby causing its camming edge 182 to force the cam follower 158 downward and forward, thereby rocking the hammer to the cocked position shown in FIG. 8. At this time the sear 182 of trigger 20 is reached, thus locking the hammer in cocked position.

In FIG. 10 the hammer remains in cocked position because of the sear 122, although the cocking lever 24 has been moved back nearly to its home position. The camming edge 182 and branch 180 of the cocking lever have moved upwardly away from the cam follower 158 of the hammer, but the latter is held down by the action of sear 122. When the trigger is pulled, the hammer is pulled down sharply by spring 152, and the parts return to the positions shown in FIG. 6.

Referring to FIGS. 6, 8, and 10, the main upright plate or frame member of the mechanism is marked 200. It has mounting studs 202 and 204 projecting sidewardly therefrom. In FIG. 9 it will be seen that the opposite side of plate 200 has similar mounting studs 206 and 208 projecting sidewardly therefrom. It may be explained that the outer body of the gun is molded out of a suitable moldable plastics material. The body is divided on a vertical plane passing longitudinally through the gun, and the two halves of the body are secured together in edge-to-edge relation, as by the use of a suitable solvent or cement. The mating edges are provided with small mating dowels and holes to properly align the halves of the gun. These are indicated at many points on the drawing along the top and bottom edges of the gun halves. The two halves have inwardly projecting sockets which receive the sidewardly projecting studs 202, 204, 206, and 208 previously referred to. In this way the mechanism is properly positioned and securely held in the body of the gun.

It is believed that the construction and operation of our improved toy gun, as well as the advantages thereof, will be apparent from the foregoing detailed description. It will also be apparent that while we have shown and described our invention in a preferred form, changes may

be made in the structure shown without departing from the scope of the invention, as sought to be defined in the following claims. In the claims the term "shell" is intended to include a cartridge as well as a shell. The term "after-sound" is intended to apply to a sound simulating the whining of a bullet in flight or the ricochet sound of a deflected bullet.

We claim:

1. A toy repeat-firing cap gun arranged to produce a percussive firing noise and also to simulate a used shell ejection from the breech portion of the gun for each percussive firing noise, said gun having an anvil, a hammer, a hammer spring, a trigger, a cap strip magazine, a cap strip feed means, a magazine extending forward from the breech portion of the gun to receive a quantity of shells, a helical spring for urging the shells in the magazine rearwardly toward the breech portion of the gun, a longitudinally movable slide at the top of the breech portion of the gun, a cocking lever to operate the cap strip feed means and to cock the hammer, a means whereby the cocking lever moves the slide to provide a shell ejection opening at the top of the gun, a shell ejector beneath the slide, and means to move the ejector upward to eject a shell when the slide is retracted by the cocking lever and to restore the ejector downward when the slide is returned by the cocking lever, at which time another shell is fed into the slide by the helical spring.

2. A toy repeat-firing cap gun arranged to produce a percussive firing noise and also to simulate a used shell ejection from the breech portion of the gun for each percussive firing noise, said gun having an anvil, a hammer, a hammer spring, a trigger, a cap strip magazine, a cap strip feed means, a simulated barrel acting as a magazine to receive a quantity of shells, a resiliently yieldable loading door at the side of the barrel near the breech portion through which the shells may be loaded into the magazine, a helical spring in said magazine for urging the shells in the magazine rearwardly towards the breech portion of the gun, a longitudinally movable slide at the top of the breech portion of the gun, a cocking lever to operate the cap strip feed means and to cock the hammer, a means whereby the cocking lever moves the slide to provide a shell ejection opening at the top of the gun, a shell ejector beneath the slide, and means to move the ejector upward to eject a shell when the slide is retracted by the cocking lever and to restore the ejector downward when the slide is returned by the cocking lever, at which time another shell is fed into the slide by the helical spring.

3. A toy cap gun for use with a perforated cap strip, said gun comprising a longitudinally slotted cap support plate, a cap hold-down shoe disposed over said plate, resilient means affording vertical movement of said shoe, a cap feed dog having an upright feed pin passing through said cap support plate to said shoe, an anvil beyond said plate, a hammer lever carrying a hammer at one end for striking said anvil, a hammer spring urging said hammer toward said anvil, a finger tab at the other end of said hammer lever, and means so connecting the feed dog to the hammer as to give the feed dog a four-way motion with the dog raised during cocking of the hammer and lowered during firing of the hammer, and a trigger having a sear for releasably holding the hammer in cocked position.

4. A toy cap gun for use with a perforated cap strip, said gun comprising a stationary support rod for receiving a roll of cap strip, a longitudinally slotted cap support plate, a cap hold-down shoe disposed over said plate, resilient means affording vertical movement of said shoe, a cap feed dog having two upright spaced feed pins passing through said cap support plate to said shoe, an anvil beyond said plate, a hammer lever carrying a hammer at one end for striking said anvil, a hammer spring urging said hammer toward said anvil, and means so connecting the feed dog to the hammer as to give the feed dog a four-way motion with the dog raised during cocking of the hammer and lowered during firing of the hammer, a cocking lever, means whereby the cocking lever cocks the hammer, and a trigger having a sear for releasably holding the hammer in cocked position.

5. A toy cap gun for use with a perforated cap strip, said gun comprising a longitudinally slotted cap support plate, a cap hold-down shoe disposed over said plate, resilient means affording vertical movement of said shoe, a cap feed dog having two upright spaced feed pins passing through said cap support plate to said shoe, an anvil beyond said plate, a hammer lever carrying a hammer at one end for striking said anvil, a hammer spring urging said hammer toward said anvil, means connecting said hammer lever to said feed dog for feeding the cap strip when the hammer is cocked, a guide for holding said dog raised during cap feed, said guide being shorter than the travel of the dog so that the dog drops at the end of its travel, said dog riding beneath said guide during its return movement, a sloping spring acting as a cam to raise said dog at the end of its return movement, whereby the dog is given a four way movement, and a trigger having a sear for releasably holding the hammer in cocked position.

6. A toy cap gun for use with a perforated cap strip, said gun comprising a longitudinally slotted cap support plate, a longitudinally grooved cap holddown shoe disposed over said plate, resilient means affording vertical movement of said shoe, a cap feed dog having an upright feed pin passing through said cap support plate to said shoe, an anvil beyond said plate, a hammer lever carrying a hammer at one end for striking said anvil, a hammer spring urging said hammer toward said anvil, a finger tab at the other end of said hammer lever, a stud on said hammer lever engaging an upright slot in said feed dog for feeding the cap strip when the hammer is cocked, a guide for holding said dog raised during cap feed, said guide being shorter than the travel of the dog so that the dog drops at the end of its travel, said dog riding beneath said guide during its return movement, a sloping spring acting as a cam to raise said dog at the end of its return movement, whereby the dog is given a four way movement, and a trigger having a sear for releasably holding the hammer in cocked position.

7. A toy cap gun for use with a perforated cap strip, said gun comprising a stationary support rod for receiving a roll of cap strip, a longitudinally slotted cap support plate, a longitudinally grooved cap hold-down shoe disposed over said plate, resilient means affording vertical movement of said shoe, a cap feed dog having two upright spaced feed pins passing through said cap support plate to said shoe, an anvil beyond said plate, a hammer lever pivoted at a point removed from said anvil and carrying a hammer at one end for striking said anvil, a hammer spring urging said hammer toward said anvil, a stud on said hammer lever engaging an upright slot in said feed dog for feeding the cap strip when the hammer is cocked, a guide for holding said dog raised during cap feed, said guide being shorter than the travel of the dog so that the dog drops at the end of its travel, said dog riding beneath said guide during its return movement, a sloping spring acting as a cam to raise said dog at the end of its return movement whereby the dog is given a four way movement, a cocking lever, means whereby the cocking lever cocks the hammer, and a trigger having a sear for releasably holding the hammer in cocked position.

8. A toy gun arranged to produce a percussive firing noise and an after-sound, said gun comprising an after-sound producing means including a bellows, resilient means to expand the bellows, a trigger, means responsive to said trigger for firing the gun during the first part of the trigger movement, and means responsive to said trigger for compressing the bellows against the resilient means during the remainder of the rearward trigger

movement, said bellows being released to expand during the trigger return movement.

9. A toy gun arranged to produce a percussive firing noise and an after-sound, said gun comprising an after-sound producing means including a bellows, resilient means to expand the bellows, a trigger, means responsive to said trigger for firing the gun during the first part of the trigger movement, and means responsive to said trigger for compressing the bellows during the remainder of the rearward trigger movement, said gun being in the form of a rifle having a hollow stock with sound egress openings, said bellows being housed in said hollow stock, a sound producing reed on said bellows, said means for compressing said bellows including a lever extending from said bellows to said trigger, and means on said trigger bearing against said lever to compress said bellows against the resilient means during the remainder of the trigger movement, said bellows being released to expand during the trigger return movement.

10. A toy gun arranged to produce a percussive firing noise and an after-sound, said gun comprising an after-sound producing means including a bellows and resilient means to expand the bellows to produce a sound, a trigger for firing the gun and for compressing the bellows against the force of the resilient means in order to store energy in said after-sound producing means as the trigger is pulled, said stored energy being automatically released during the trigger return movement, said gun being in the form of a rifle having a hollow stock with sound egress openings, said bellows being housed in said hollow stock, a sound producing reed on said bellows, said means for compressing said bellows including a lever extending from said bellows to said trigger, and means on said trigger bearing against said lever to compress said bellows, said reed being responsive to expansion but not compression of said bellows.

11. A toy gun arranged to produce a percussive firing noise and an after-sound, said gun comprising an after-sound producing means including a bellows and resilient means to expand the bellows to produce a sound, a trigger, means responsive to said trigger for firing the gun during the first part of the trigger movement, and means responsive to said trigger for compressing the bellows against the force of the resilient means in order to store energy in said after-sound producing means during the remainder of the rearward trigger movement, said stored energy being automatically released during the trigger return movement.

12. A toy gun arranged to produce a percussive firing noise and an after-sound, said gun comprising an after-sound producing means including a bellows and resilient means to expand the bellows to produce a sound, a trigger, means responsive to said trigger for firing the gun during the first part of the trigger movement, and means responsive to said trigger for compressing the bellows against the force of the resilient means in order to store energy in said after-sound producing means during the remainder of the rearward trigger movement, whereby said stored energy is automatically released during the trigger return movement, said gun being in the form of a rifle having a hollow stock with sound egress openings, said bellows being housed in said hollow stock, a sound producing reed on said bellows, said means for compressing the bellows including a lever extending from said bellows to a point near said trigger, and means on said trigger bearing against said lever to compress said bellows, said reed being responsive to expansion but not compression of said bellows.

13. A toy repeat-firing cap gun arranged to produce a percussive firing noise and also to simulate a used shell ejection from the breach portion of the gun for each percussive firing noise and also to produce an after sound, said gun having an anvil, a hammer, a hammer spring, a trigger, a cap strip magazine, a cap strip feed means, a magazine to receive a quantity of shells, a movable shell ejector at the breech portion of the gun for ejecting a shell transversely of its length, a spring in said magazine for urging the shells to the ejector, a bellows, a sound producing reed on said bellows, a cocking lever to operate the cap strip feed means and to cock the hammer, a means whereby the cocking lever operates the ejector to eject a shell, and return of the cocking lever retracts the ejector, said spring serving to feed the next shell to the ejector after retraction of the ejector, means responsive to the trigger to release the hammer and fire the gun, and means responsive to said trigger to operate said bellows.

14. A toy repeat-firing cap gun arranged to produce a percussive firing noise and also to simulate a used shell ejection from the breech portion of the gun for each percussive firing noise and also to produce an after sound, said gun having an anvil, a hammer, a hammer spring, a trigger, a cap strip magazine, a cap strip feed means, a magazine extending forward of the breach portion of the gun to receive a quantity of shells, a helical spring in said magazine for uring the shells in the magazine rearwardly toward the breech portion of the gun, a bellows having resilient means to expand the same, a sound producing reed on said bellows, a longitudinally movable slide at the top of the breech portion of the gun, said slide having a part designed to receive a shell from the magazine, a cocking lever to operate the cap strip feed means and to cock the hammer, a means whereby the cocking lever moves the slide to provide a shell ejection opening at the top of the gun, a movable shell ejector beneath the slide, means to move the ejector upward to eject a shell when the slide is retracted by the cocking lever and to restore the ejector downward when the slide is returned by the cocking lever, at which time another shell is fed into the slide by the helical spring, means responsive to the trigger to release the hammer and fire the gun, and means responsive to said trigger to compress said bellows, said bellows being released during the trigger return movement.

15. A toy repeat-firing cap gun arranged to produce a percussive firing noise and also to simulate a used shell ejection from the breech portion of the gun for each percussive firing noise and also to produce an after sound, said gun having an anvil, a hammer, a hammer spring, a trigger, a cap strip magazine, a cap strip feed means, a magazine extending forward of the breech portion of the gun to receive a quantity of shells, a helical spring in said magazine for urging the shells in the magazine rearwardly toward the breech portion of the gun, a bellows having resilient means to expand the same, a sound producing reed on said bellows, a longitudinally movable slide at the top of the breech portion of the gun, said slide having a part designed to receive a shell from the magazine, a cocking lever to operate the cap strip feed means and to cook the hammer, a means whereby the cocking lever moves the slide to provide a shell ejection opening at the top of the gun, a movable shell ejector beneath the slide, means to move the ejector upward to eject a shell when the slide is retracted by the cocking lever and to restore the ejector downward when the slide is returned by the cocking lever, at which time another shell is fed into the slide by the helical spring, means responsive to the trigger to release the hammer and fire the gun during the first part of the trigger movement, a lever extending from said bellows to a point near said trigger, and means on said trigger bearing against said lever to compress said bellows during the remaining part of the trigger movement, said bellows being released during the trigger return movement, and said reed being responsive to expansion but not compression of said bellows.

16. A toy repeat-firing cap gun arranged to produce a percussive firing noise and also to simulate a used shell

ejection from the breech portion of the gun for each percussive firing noise and also to produce an after sound, said gun being in the form of a rifle and having an anvil, a hammer, a hammer spring, a trigger, a cap strip magazine, a cap strip feed means, a simulated barrel acting as a magazine to receive a quantity of shells, a resiliently yieldable loading door at the side of the barrel near the breech portion through which the shells may be loaded into the magazine, a helical spring in said magazine for urging the shells in the magazine rearwardly toward the breech portion of the gun, a hollow stock with sound egress openings, a bellows housed in said hollow stock and having resilient means to expand the same, a sound producing reed on said bellows, a longitudinally movable slide at the top of the breech portion of the gun, said slide having a part designed to receive a shell from the magazine, a cocking lever to operate the cap strip feed means and to cock the hammer, a means whereby the cocking lever moves the slide to provide a shell ejection opening at the top of the gun, a movable shell ejector beneath the slide, means to move the ejector upward to eject a shell when the slide is retracted by the cocking lever and to restore the ejector downward when the slide is returned by the cocking lever, at which time another shell is fed into the slide by the helical spring, means responsive to the trigger to release the hammer and fire the gun during the first part of the trigger movement, a lever extending from said bellows to a point near said trigger and means on said trigger bearing against said lever to compress said bellows during the remaining part of the trigger movement, said bellows being released during the trigger return movement, and said reed being responsive to expansion but not compression of said bellows.

17. A toy repeat firing cap gun arranged to produce a percussive firing noise and also to simulate a used shell ejection from the breech portion of the gun for each percussive firing noise, said gun having an anvil, a hammer, a hammer spring, a trigger, a cap strip magazine, a cap strip feed means, a magazine for receiving a quantity of shells, a shell ejector mounted for upward movement beneath a shell at the breech portion of the gun for ejecting the shell transversely of its length, a feed spring in the magazine urging the shells to the ejector, a cocking lever to operate the cap strip feed means and to cock the hammer, and means operated in response to downward movement of the cocking lever to move the ejector upward whereby the cocking lever operates the ejector to eject a shell, and to restore the ejector downward when the cocking lever is returned to normal position, said feed spring serving to feed the next shell from the magazine to the ejector after retraction of the ejector.

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