

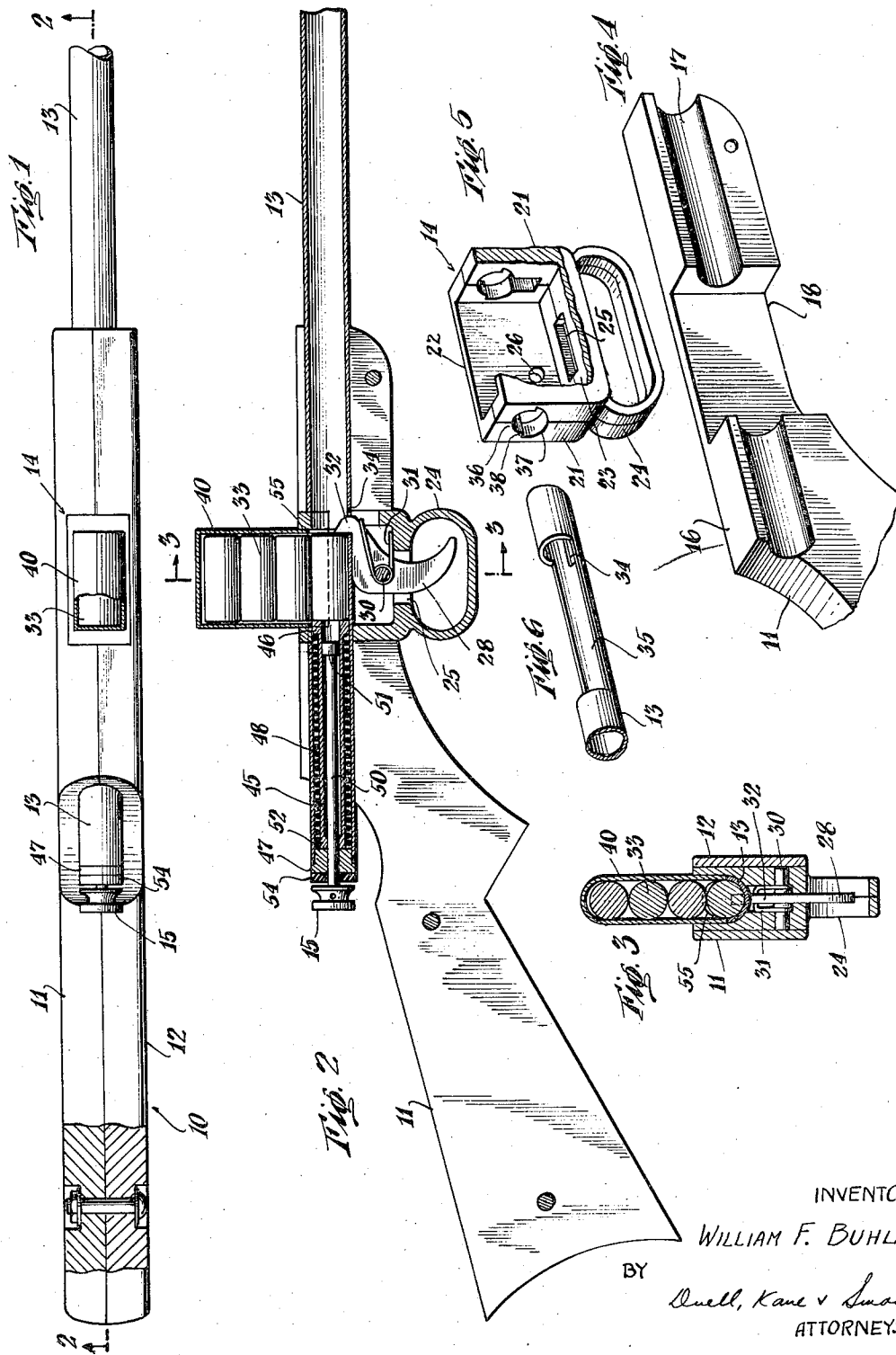
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COMBINED MAGAZINE RECEIVER AND BARREL FOR TOY GUNS

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COMBINED MAGAZINE RECEIVER AND
BARREL FOR TOY GUNS

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This invention relates particularly to a toy simulating a repeating rifle.

It is an object of the invention to provide a toy gun or the like having simplified means whereby the cocking of the gun for "firing" permits a new projectile to be fed into the chamber.

It is another object of the invention to provide a toy of the class described, having an improved trigger mount and magazine section.

It is still another object of the invention to provide a toy gun or the like having improved spring propulsion means for the projectiles.

It is still another object of the invention to provide a toy gun of the magazine repeating type, constructed of a relatively few parts which may be assembled by unskilled labor.

It is another object of the invention to provide a toy gun or the like which has but very few exposed moving parts, and which will therefore operate for long periods of time with freedom from mechanical difficulties.

In the accompanying drawings:

Fig. 1 is a plan view of a gun embodying the invention, a portion of the stock being cut away to show typical fastening means therefor;

Fig. 2 is an elevation, taken in section on lines 2—2 of Fig. 1;

Fig. 3 is a vertical section taken through the magazine and trigger mount on lines 3—3 of Fig. 2;

Fig. 4 is a perspective of a portion of one of the stock members;

Fig. 5 is a perspective of the trigger guard and magazine receiver, the trigger having been removed, and a portion of the guard having been broken away to reveal concealed structure; and

Fig. 6 is a perspective of a portion of the barrel of the gun.

Referring to the drawing, the toy gun embodying the present invention includes a stock 10 which is formed of mating half-portions 11 and 12, a barrel 13, a combined magazine receiver and trigger mount 14, and a cocking piece 15.

The stock portions are formed from flat wood pieces of suitable thickness and are preliminarily cut to shape on a bandsaw or the like. An upper surface 16 of each piece is planed smooth and provides a gauging surface on which the stock portion may be supported for movement into a routing knife which cuts a longitudinal semicircular groove 17. The diameter of the groove 17 is equal to the outside diameter of the barrel 13. In a circular saw or other conventional means, a square-end pocket 18 is formed in the inner wall of the stock member, preferably at right angles 55

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to the axis of the groove 17. Each stock portion is similarly made, and when assembled, provides a lengthwise tubular passage within which the barrel 13 is ultimately confined, and a transversely extending pocket which accommodates the trigger guard and magazine receiver. Suitable sanding and other finishing operations may be employed to bring the stock to ultimate form and curvature.

The trigger guard and magazine receiver is formed of two mating half-sections shown in perspective in assembled position in Fig. 5. Each half-section is advantageously formed by die-casting, and provides vertical end walls 21—21, a side wall 22, a bottom wall 23 and one half of a trigger guard 24. The bottom wall 23 is cut away to provide a passage 25 through which the trigger may pass, and each side wall 22 has a hole 26 to receive a trigger pin.

The trigger 28 is placed in position through the opening 25 formed by the respective half-portions of the trigger guard, and is pivoted therein by the freely mounted pin 30. A "mousetrap" spring 31 is positioned as shown in Fig. 2, to urge the trigger into counterclockwise rotation. The trigger has a nose portion 32, the upper edge of which is sloping, and the rear edge of which is preferably squared to form an abutment to retain the projectiles 33 in ready to fire position, as shown in Fig. 2. Accordingly, the barrel 13 has a notch 34 formed in the lower part thereof, to permit the entry of the nose of the trigger.

As shown in Fig. 6 the upper half of the barrel 13 is cut away for a length slightly greater than the overall length of the magazine receiver, to form a passage 35 through which the projectiles may fall to enter the firing chamber. As is shown in Fig. 5, each end wall of each half element forming the magazine-receiving chamber has quarter-sectional arcs respectively 36, 37, which are concentric. The radius of the upper arc is the same as the inner radius of the barrel, whereas the lower arc has a radius equal to the outer radius of the barrel. Therefore there is a jog or shoulder 38 which represents the wall thickness of the barrel. The inside face to face distance between the end walls of the magazine receiver is equal to or very slightly less than the overall length of the magazine 40.

Within the barrel there is slidably mounted a hollow tubular plunger 45 having a flanged end 46, the outer diameter of which is sufficiently smaller than the inner diameter of the barrel to permit free movement therealong with minimum of binding. The barrel is closed by a suitably

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affixed plug 47, and confined about the plunger 45 and between the plug 47 and the inner wall of flange 46, is coil spring 48. Plug 47 has an axial passage through which extends a rod 50, terminating in a head 51 which is free to slide within plunger 45, and which may engage with the end wall 52 of said plunger 45. The cocking piece 15 is affixed to the projecting end of rod 50. Desirably a bumper 54 of rubber or other soft material is interposed between the piece 15 and the outer end of the plug 47.

Assuming the spring and plunger elements to have been assembled within the barrel as above stated, the barrel is placed with respect to one of the half portions of the magazine receiver and trigger guard so that the cut away portion 35, which is coincident with the outside to outside wall spacing between the end walls of said magazine receiver is properly positioned therein. It will be seen therefore that the opposed parallel walls of the cutaway 35 of the barrel are positioned beneath the jogs 38 of the passage through the trigger guard walls. Then, after positioning the trigger 28 the complementary magazine-receiver member is placed in position. It will be seen that the engagement of the jogs with the edge walls of the barrel at its cutaway portion prevents the barrel from rotating relative to the magazine receiver, and thus always insure that the opening 35 in the barrel faces vertically upwardly. The end wall surfaces of the receiver, as appears in Fig. 2 are immediately inside of the barrel wall at the ends of the cutaway 35 and hence the barrel is held against longitudinal movement with respect to the said receiver.

With the barrel and magazine receiver assembled as above set forth, the assembly is placed upon one of the halves of the stock so that the barrel occupies the semicircular groove therein, and the magazine receiver fits within the transverse pocket 18. The other stock portion is then placed in position, and is secured to the previously placed stock member by screws, gluing, or other means whereupon the entire assembly is firmly held against displacement, within the stock.

The magazine 40 is desirably molded of plastic, and has end walls which have arcuate openings 55, and a wall thickness which permits the magazine to rest upon the walls of the barrel 13 at the cutaway portion 35 thereof as shown in Fig. 3. The outside wall to wall length of the magazine is very slightly greater than the inner wall to wall spacing of the magazine receiver so that the magazine is frictionally held in position.

With no magazine in position in the receiver, or with an unloaded magazine in position, it is apparent that the spring 48 will expand, pushing against the plunger 45 to move it along the barrel until the end of the plunger flange 46 strikes the vertical end surface of the trigger nose 32. It is apparent that the rod 50 and head 51 thereon permit such free movement of the spring and plunger. With the magazine loaded, as with the four simulated cartridges shown in Fig. 2 and placed in the socket above the magazine receiver, the cocking piece 15 is drawn rearwardly so that the head 51 engages with the rear end 52 of the plunger 45, whereupon the plunger may be drawn rearwardly and the spring compressed. As soon as the end 46 of the plunger is sufficiently withdrawn, the lowermost projectile 33 will drop into the barrel chamber, the end of the projectile being in front of the nose of the trigger. The cocking piece 15 may then be released so that the end 46 of plunger 45 abuts against the op-

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posite end of the cartridge, the trigger nose restraining further movement. Cocking piece 15 is then pushed forwardly to its Fig. 2 position, and the gun is ready for firing. As the trigger is pulled and rotated clockwise in Fig. 2, the nose 32 disengages from the end of the cartridge and the reaction of the spring drives the plunger 45 forwardly and propels the cartridge through the barrel. The loading operation of compressing the spring 48 and drawing the plunger 45 rearwardly to permit a new cartridge to enter the chamber may be repeated and the gun "fired" until all projectiles in the magazine have been expended.

Although the invention has been described by making a fully detailed reference to a certain presently preferred embodiment, such detail of description is to be understood in an instructive rather than a limiting sense, many changes being possible within the scope of the claims hereto appended.

I claim:

1. In a toy gun or the like having a magazine accommodating a plurality of projectiles, the combination of a magazine receiver having side and end walls defining an opening to receive the end of said magazine, each said end wall having a passage therethrough in alignment with the passage in the other end wall, each passage including an upper semicircular portion and a lower semicircular portion concentric therewith and of different diameter than said upper portion, and a gun barrel extending through said passages, said gun barrel having a wall opening therein to provide shoulders for engagement with the offsets formed in said walls at the ends of said upper and lower semicircular portions and whereby said gun barrel is secured against rotation relative to said magazine receiver.

2. In a toy gun or the like having a magazine accommodating a plurality of projectiles, the combination of a magazine receiver having side and end walls defining an opening to receive the end of said magazine, each said end wall having a passage therethrough in alignment with the passage in the other end wall, each passage being non-circular and providing aligned offsets in said end walls, and a gun barrel extending through said passages, said gun barrel having a wall opening therein to provide shoulders for engagement with said offsets whereby said gun barrel is secured against rotation relative to said magazine receiver.

3. In a toy gun or the like having a magazine accommodating a plurality of projectiles, the combination of a magazine receiver having side and end walls defining an opening to receive the end of said magazine, each said end wall having a passage therethrough in alignment with the passage in the other end wall, a gun barrel having an upper half portion removed for a length equal to the overall length of said magazine receiver, each said end wall passage including an upper semicircular portion having a diameter equal to the inside diameter of the barrel and a concentric lower semicircular half portion having a diameter equal to the outside diameter of the barrel, said gun barrel extending through said passages and being held against rotation by engagement of its side walls at said cut-away portion with the offsets provided by the unequal radii of the said passages.

4. In a toy gun or the like having a magazine accommodating a plurality of projectiles, the combination of a magazine receiver having side and

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end walls defining an opening to receive the end of said magazine, each end wall having a passage therethrough in alignment with the passage in the other end wall, a gun barrel having an upper half portion removed for a length equal to the overall length of said magazine receiver, each said end wall passage including an upper semicircular portion having a diameter equal to the inside diameter of the barrel and a concentric lower semicircular half portion having a diameter equal to the outside diameter of the barrel, said gun barrel extending through said passages and being held against rotation by engagement of its side walls at said cut-away portion with the offsets provided by the unequal radii of the said passages and against longitudinal movement with respect to said magazine receiver by engagement of the full-circumference portions of the barrel at each end of its said cutaway portion with the outside end-wall surfaces of said receiver.

5. In a toy gun or the like having a magazine accommodating a plurality of projectiles, the combination of a magazine receiver having side and end walls defining an opening to receive the end of said magazine, a trigger guard integral with said magazine receiver, a trigger pivotally mounted in said magazine receiver, each end wall of said magazine receiver having a passage therethrough in alignment with the passage in the other end wall, each passage including an upper semicircular portion and a lower semicircular portion concentric therewith and of different diameter than said upper portion, and a gun barrel extending through said passages, said barrel having an outside diameter corresponding to the larger of said semi-circular portions and having its wall cut away to provide wall means for engagement with the offsets formed in said end walls at the ends of said upper and lower semicircular portions whereby said gun barrel is secured against rotation relative to said magazine receiver.

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6. A toy gun or the like, including a polygonal structure defining a chamber for receiving a projectile, said chamber having parallel end walls, each end wall having a passage in alignment with the passage in the opposite end wall, said passages being formed with shoulder portions; a gun barrel extending through said aligned passages, said barrel being slotted to provide an opening communicating with said chamber and having wall means defining the slotted portion, the end walls of said slotted portion engaging respectively with the outside end walls of the chamber to prevent longitudinal movement relative thereto and portions of the side walls of said slotted portion engaging with the shoulder portions of said passages to prevent rotative movement relative to said chamber; a gun stock comprising mating portions having mutually registering grooves to define a passage for the accommodation of the gun barrel, and mutually registering grooves to define a pocket for the snug accommodation of said polygonal structure, whereby when said stock portions are assembled and mutually secured, the gun barrel and polygonal structure will be fixedly secured therein.

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