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2,828,732

TOY MACHINE GUN CONSTRUCTION

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2 Sheets-Sheet 1

Fig. 1

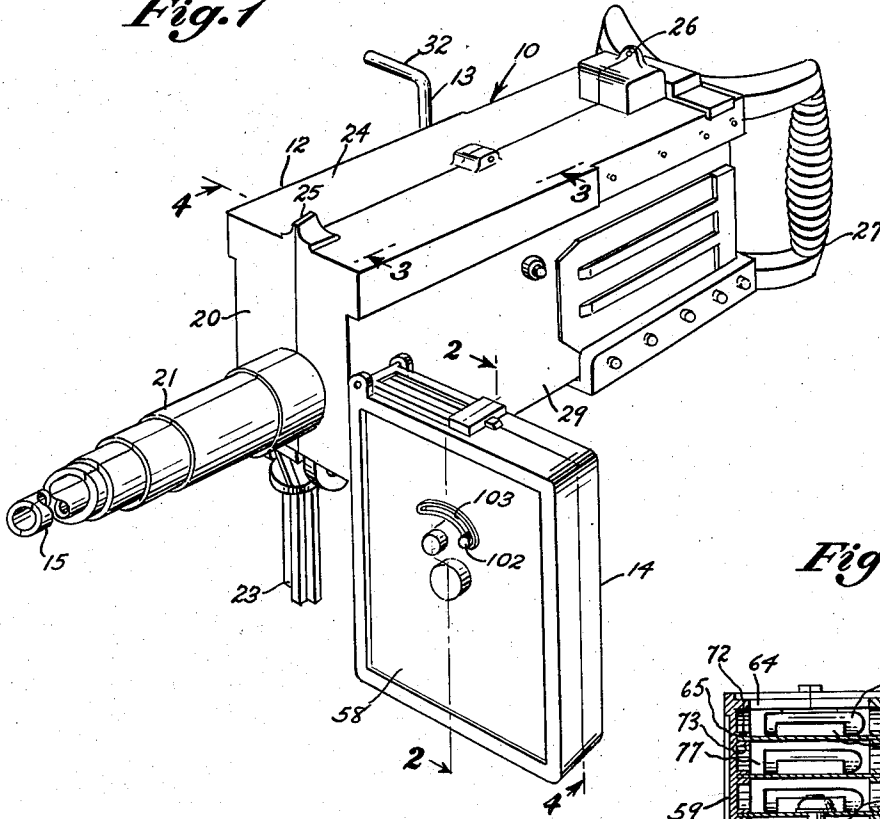


Fig. 2

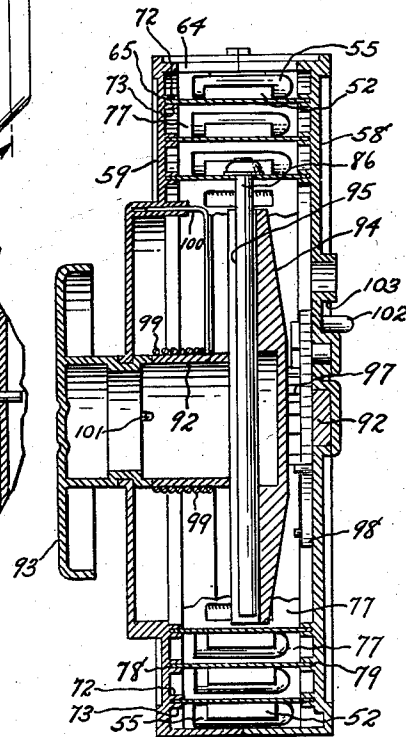
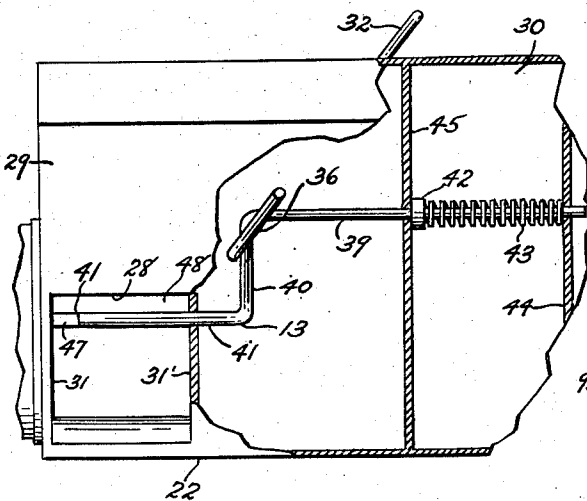


Fig. 3



April 1, 1958

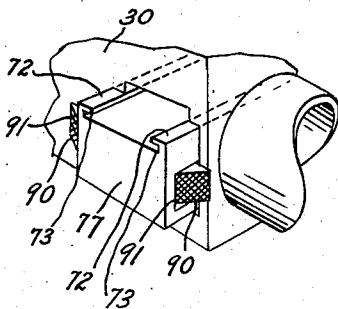
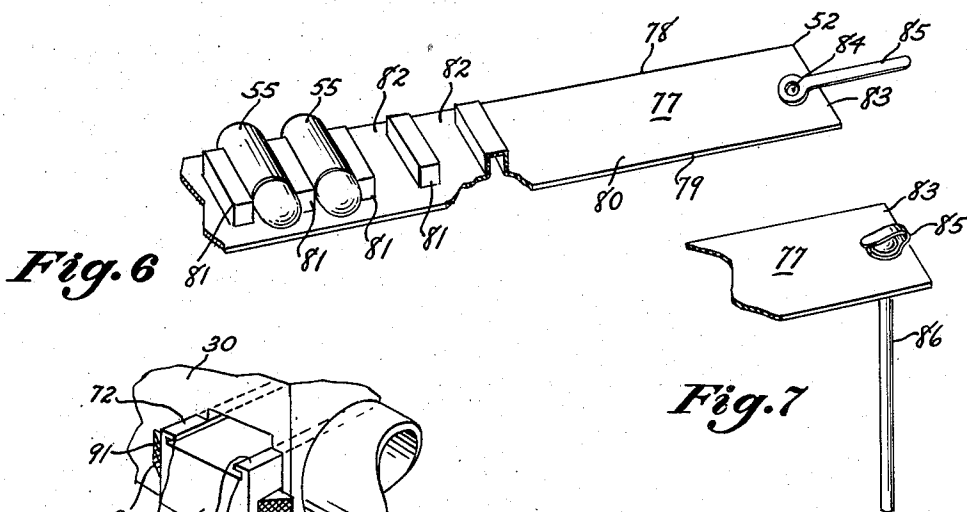
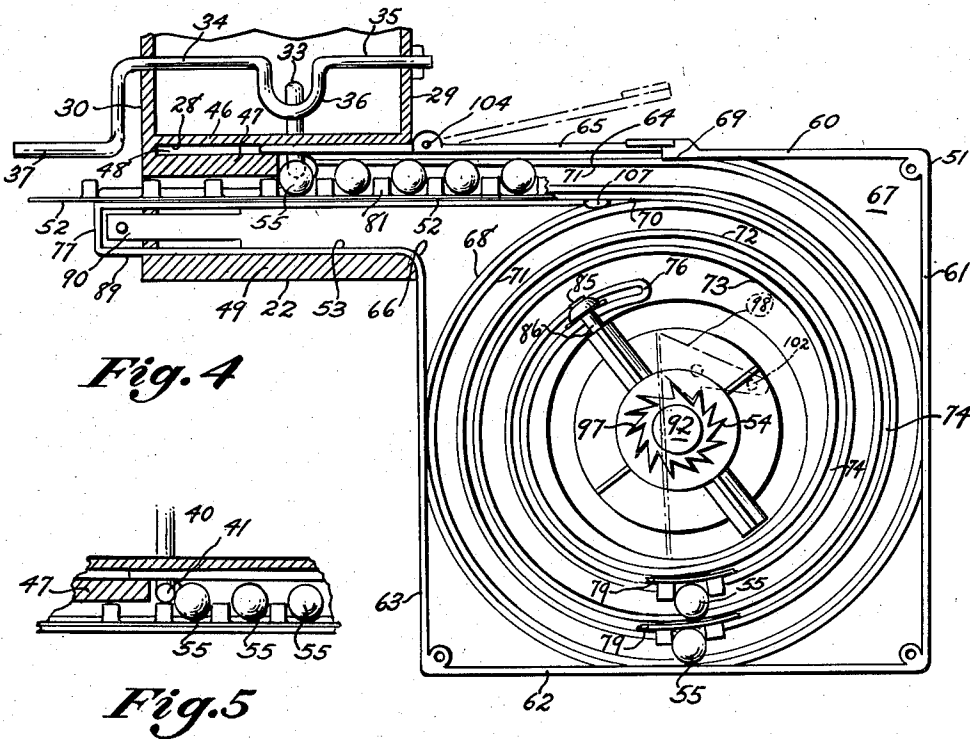
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TOY MACHINE GUN CONSTRUCTION

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2 Claims. (Cl. 124—29)

This invention relates generally to the field of toys, and more particularly to an improved toy machine gun adapted to simulate in operation various types of heavy machine guns in current use by the armed forces.

Toys of this general type are known in the art, and include means for causing rapid oscillation of a resiliently urged bolt member before which are successively positioned a plurality of harmless pellets which are ejected by the contact of the bolt with a rearwardly disposed surface of the pellets. Although actual Browning-Type Machine Guns are normally belt fed, toy simulations of such guns have been fed from resilient clip magazines, owing to the difficulty of incorporating belt advancement means in the receiver portion of the gun. Such constructions have made necessary the constant reloading of the magazines, and the changing or replacement of a fresh magazine after the simulated firing of a relatively few rounds of toy ammunition.

Another difficulty has been encountered in the use of belt feeding in the toy machine gun art in that in the case of actual ammunition belts, ammunition is loaded into canvas loops to be firmly held therein until such time as extracted by the bolt mechanism of the machine gun. The force required to seat and release the rounds of ammunition in the loops of a belt adapted to securely hold the same is often above the physical strength of the youthful user of the corresponding toy.

It is therefore, among the principal objects of the present invention to provide improved toy machine gun structure in which the above mentioned disadvantages have been substantially eliminated.

Another object of the invention lies in the provision of a belt feeding device for use in conjunction with a toy machine gun, which requires no belt advancement means disposed within the receiver of the toy gun, thereby permitting the same to be incorporated into receiver constructions of relatively simple design already known in the art.

A further object of the invention lies in the provision of an improved toy machine gun magazine, which may resemble in configuration a live ammunition box, and from which is advanced an ammunition carrying belt in realistic manner.

Still another object of the invention lies in the provision of improved toy machine gun magazine construction in which the toy ammunition is carried by belt means, which has incorporated therein means for advancing the belt as required.

A still further object of the invention lies in the provision of structure of the class described in which the cost of fabrication may be of a reasonably low order, with consequent wide sale, distribution and use.

Still another object of the invention lies in the provision of improved toy machine gun magazine construction which may be easily loaded by those possessing only juvenile skills, and which may be well adapted to withstand hard usage.

A feature of the device lies in the fact that almost all

2

of the component parts thereof may be injection molded from synthetic resinous materials, whereby the device may be easily maintained in a sanitary condition.

Another feature of the invention lies in the fact that substantially all relatively fragile parts are concealed within a housing, thereby assuring a relatively long trouble-free useful life.

These objects and features, as well as other incidental ends and advantages, will become more clearly apparent during the course of the following disclosure, and be pointed out in the appended claims.

On the drawings, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

Figure 1 is a fragmentary view in perspective showing an embodiment of the invention.

Figure 2 is an enlarged vertical transverse sectional view as seen from the plane 2—2 on Figure 1.

Figure 3 is an enlarged fragmentary vertical longitudinal sectional view as seen from the plane 3—3 on Figure 1.

Figure 4 is a vertical longitudinal sectional view showing a magazine element in engaged condition, as seen from the plane 4—4 on Figure 1.

Figure 5 is a fragmentary vertical sectional view corresponding to the upper left hand portion of Figure 4, and showing an altered relative position of the component parts thereof.

Figure 6 is a fragmentary view in perspective of a belt member which comprises a part of the embodiment.

Figure 7 is a fragmentary view in perspective corresponding to the right hand portion of Figure 6, but showing an altered relative position of the component parts.

Figure 8 is a fragmentary view in perspective showing the engagement of a magazine element with a receiver element.

In accordance with the invention, the device, generally indicated by reference character 10, comprises broadly; a receiver element 12, an ejecting element 13, a magazine element 14, and a barrel element 15.

The receiver element 12 is generally rectangular in configuration, and includes a front wall 20 from which extends a simulated recoil mechanism 21 which mounts the barrel element 15 at the rearward end thereof. The lower wall 22 is provided with well-known tripod support means 23, while an upper wall 24 is equipped with front and rear sights 25 and 26, respectively. A rear wall (not shown) is provided with grip means 27, all of which is generally known in the art.

A through rectangularly shaped opening 28 extends from the left side wall 29 to the right side wall 30, the opening being defined by front and rear walls 31 and 31' respectively.

The ejecting element 13 may be of any suitable type, including a crank member 32 and bolt member 33. Referring to Figure 4 of the drawing, the crank member 32 is mounted for rotation about shaft members 34 and 35, and is provided with a centrally disposed crank throw 36 which engages a part of the bolt member 33. An externally disposed manually engageable crank 37 causes the crank throw to describe arcuate motion in a counter-clockwise direction as seen on Figure 3.

The bolt member 33 includes a first horizontally disposed portion 39, a vertically disposed portion 40, and a second horizontally disposed portion 41. A collar 42 forms a seat for the coil spring 43 which is concentrically disposed with the axis of the horizontal portion 39. The opposite terminal of the spring bears against a rearwardly disposed wall 44. Forward movement of the bolt member is determined by the engagement of the collar 42 with

a septum 45 within the receiver element 12. From a consideration of Figure 3, it will be apparent that rotation of the crank member will result in the engagement of the crank throw 36 with the vertically disposed portion 40 and the movement of the bolt member 33 in a rightward direction until such time as the crank throw clears the portion 40. Upon release of the portion 40, the spring 43 urges the bolt member leftwardly, with a snap action, wherein the portion 41 may strike a pellet disposed coaxially therewith, to propel the same outwardly through the barrel element 15.

Referring to Figure 4 of the drawings, the opening 28 also includes an upper wall 46, beneath which is disposed a positioning member 47, the wall 46 and member 41 forming a channel 48. A portion of the lower wall 22 is thickened at 49 to support the weight of the magazine element 14 when engaged as shown on Figure 4.

The magazine element 14 is best seen on Figures 2 and 3 of the drawings, and includes a magazine housing 51, a belt member 52, receiver element engaging means 53, belt retracting and extending means 54 and a plurality of harmless pellets 55.

The housing 51 includes a forward wall 58, a rearward wall 59 and edge walls 60, 61, 62, and 63. The upper edge wall 60 is provided with a rectangularly shaped loading opening 64 which is normally closed by a loading gate 65. The edge wall 63 is provided with a discharge opening 66 through which the belt member 52 at least partially extends at all times. Extending from the inner surface 67 of the forward and rearward walls 58 and 59 is a spiral wall 68 between the points 69 and 70, for the purpose of maintaining the pellets 55 upon the belt member, as will become more clearly apparent. Disposed adjacent the wall 68 is a flange 71 which extends outwardly into the receiver element engaging means 53 to the point of discharge of the pellets 55, the flange serving to align the pellets upon the belt member as will become more clearly apparent.

Commencing at the outer wall 77 of the receiver element engaging means 52 are a pair of upper and lower track members 72 and 73 which are adapted to engage the longitudinal edges of the belt member 52, the track members forming therebetween continuous spiral grooves 74 having their inner terminals indicated by reference character 76.

The belt member 52 is preferably formed from a single elongated piece of synthetic resin possessed of a moderate degree of resiliency and flexibility. The planar portion 80 thereof includes longitudinal edges 78 and 79, and a plurality of substantially equally spaced pellet positioning portions 81 are superimposed upon the upper surface 77 thereof. As best seen on Figure 6 of the drawings, the positioning portions 81 are generally rectangular in configuration, and form a plurality of recesses or channels 82 of a width sufficient to accommodate a single pellet 55. The inner end 83 of the belt member is provided with an opening 84 and bendable tab 85 (see Figure 7) which acts to retain a headed pintle 86 in association therewith.

The receiver element engaging means 53 is of such configuration as to provide a sliding fit with the opening 28 in the receiver element 12. It includes a positioning tongue 89 which is provided with a pair of resilient self-locking tabs 90. As best seen on Figure 8 of the drawings, the tabs 90 are provided with cam surfaces 91 to facilitate the engagement of the magazine element with the receiver element.

The belt retracting and extending means 54 is best seen on Figures 1, 2 and 4. It includes a shaft 92, a winding knob 93 fixed to shaft 92 and a belt driving member 94 having an elongated bore 95 disposed therein. When completely assembled, the pintle 86 slidably engages the bore 95 to transmit motion from the shaft 92 to the belt member. A ratchet member 97 is provided with a spring pawl 98. A torsional coil spring 99 is disposed coaxially

with the shaft 92 and a first end 100 thereof is fixed to the rearward wall 59, while the second end 101 is fixed to the shaft. The pawl release lever 102 is mounted on the forward wall 59 and projects through a slot 103 therein.

The loading of the magazine element 14 is accomplished as follows: After moving the pawl release lever 102 to the position shown on Figure 1 wherein the pawl will resiliently engage the ratchet 97, the loading gate 65 is swung upwardly about the gate pintle 104 as shown on Figure 4. The knob 93 is then wound in a counter-clockwise direction to position empty recesses 82 beneath the opening 64. Pellets are then placed upon the belt member in the recesses, after which the knob is again rotated through a short angular displacement to position succeeding empty recesses. During this rotation, the spring 99 is being stressed, and is held by the engagement of the pawl 98 with the ratchet member 97. This operation is repeated until all of the empty recesses have been filled, after which the loading gate 65 is returned to closed position to maintain the last of the pellets upon the belt member. Excess winding of the belt member is prevented by the engagement of the inner end 83 thereof with the terminals 76 of the grooves 78.

The magazine is then inserted into the opening 28 to the point where the tabs 90 engage the receiver element as shown on Figure 8, and the pawl release lever 102 is moved counterclockwise as shown on Figure 1 to permit the spring 99 to urge the belt member outwardly.

The above procedure will result in positioning the first of the pellets 55 against the horizontal portion 41 of the bolt member 33, thus readying the device 10 for fire. Upon rotation of the crank member 32, the portion 41 will be withdrawn rightwardly as shown on Figure 3, thus permitting the first of the pellets to position itself substantially coaxially with the portion 41. As may be seen on Figures 4 and 5, the portions 81 are of a height sufficiently low to permit them to pass beneath the member 47, and the successive pellets 55, being of greater height are arrested by contact with the edge surface of the positioning member. With continued rotation of the crank member 32, the vertical portion 40 becomes disengaged from the crank throw 36, permitting the bolt member to project the pellet 55 aligned therewith. Upon movement of the pellet from contact with the belt member the spring 99 causes additional advancement of the belt member so that the next succeeding pellet assumes the position shown on Figure 5, further movement of the belt member being arrested by contact of the pellet with the horizontal portion 41 of the bolt member 33.

The above described operation is continued as long as there are pellets remaining upon the belt member, the discharge of the last pellet permitting the spring 99 to completely unwind to the point where the pintle 86 contacts a stop 107 (see Figure 4). The empty magazine is removed by squeezing together the cam surfaces 91, which permits the receiver element engaging means 53 to be withdrawn from the through opening 28.

It may thus be seen that we have invented new and highly useful improvements in toy machine gun construction, in which there has been provided a conveniently loaded and easily engaged magazine element which closely simulates in operation the standard ammunition containers employed for positioning feed belts in association with the receiver element of an actual machine gun. The device may be formed by molding a minimum of parts, and is readily disassembled for repair, should the same prove necessary. Owing to the use of a large percentage of non-metallic material, the overall weight of the device is a small fraction of that of the device which it simulates, thus permitting youthful users to carry the same without difficulty.

If desired, the magazine element may be completely reloaded without removing the same from engagement with the receiver element, thus facilitating the use of the toy.

5

We wish it to be understood that we do not consider the invention limited to the precise details shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

We claim:

1. A magazine for use in conjunction with a toy fire arm comprising: a partially hollow housing having coiled track means disposed upon inner surfaces thereof; an elongated flexible belt member disposed in coiled relationship within said housing and engaged and supported by said track means; said housing having means for engaging the same upon said fire arm and an opening through which a portion of said belt member may project; resilient means engageable with a portion of said belt member for urging the same outwardly of said housing through said opening; said belt member having a plurality of substantially equally spaced projections disposed substantially at right angles with respect to the principal axis of said belt member, said projections forming elongated channels therebetween of a width sufficient to accommodate a single pellet; said track means being so configured as to cause said belt member in coiled condition within said housing to position successive convolutions thereof to overlie said channels to maintain said pellets within said channels; and ratchet locking means for selectively fixing the position of said belt member at any desired location within said housing, said ratchet means being utilized to position the belt and hold the same against the force of said resilient means during reloading.

6

2. In combination, a toy machine gun and a pellet magazine therefor, said magazine comprising: a partially hollow housing having coiled track means disposed on inner surfaces thereof, an elongated flexible belt member disposed in coiled relationship within said housing and engaged and supported by said track means; said belt member having a plurality of substantially equally spaced projections disposed substantially at right angles with respect to the principal axis of said belt member, said projections forming elongated recesses therebetween of a width sufficient to accommodate a single pellet; said housing having gun engaging means having an opening therein and means for supporting said belt, said machine gun having an opening in which said last mentioned means is engageable; said machine gun having pellet arresting means disposed within said opening and adapted to clear successive projections disposed upon said belt as said belt is advanced from said magazine to said gun; said machine gun also having resilient means engageable with successive pellets in arrested position for urging said pellets outwardly of said gun in succession.

References Cited in the file of this patent

UNITED STATES PATENTS

735,757	Grubbs	Aug. 11, 1903
1,406,954	Peoples	Feb. 14, 1922
2,011,889	Birkigt	Aug. 20, 1935
2,367,572	Gazda	Jan. 16, 1945
2,394,606	Gazda	Feb. 12, 1946