

May 20, 1958

R. J. LOHR ET AL
TOY SHOOTING RANGE

2,835,495

Filed Jan. 10, 1955

4 Sheets-Sheet 1

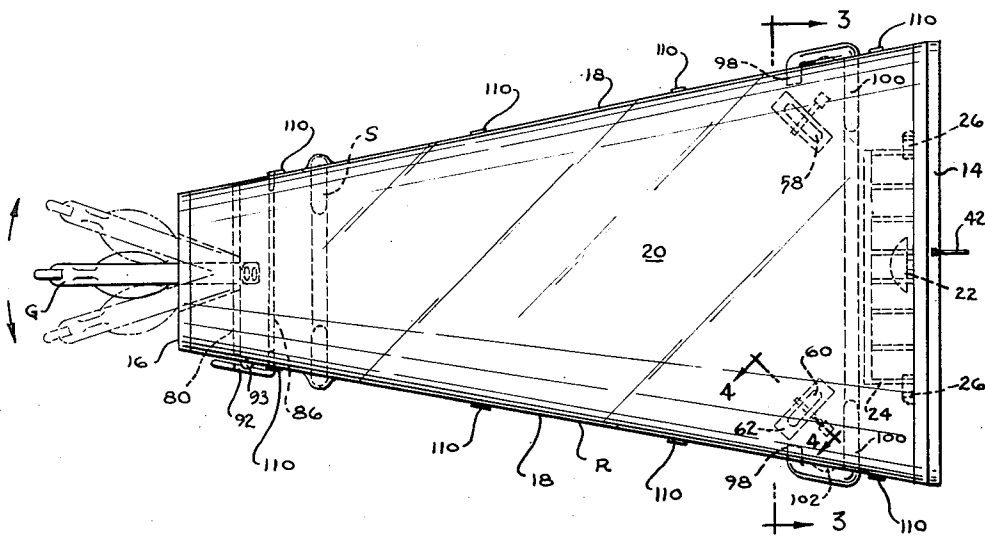


FIG. 1

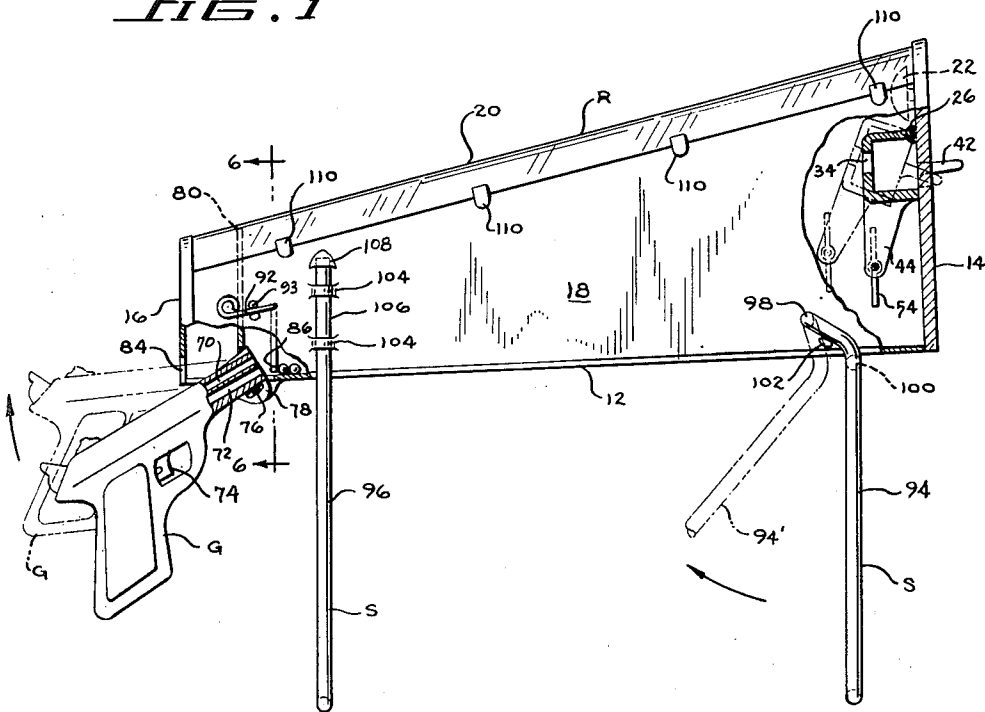


FIG. 2

INVENTORS
RAYMOND J. LOHR
DANIEL SAKUTA

BY *James and Franklin*
ATTORNEY

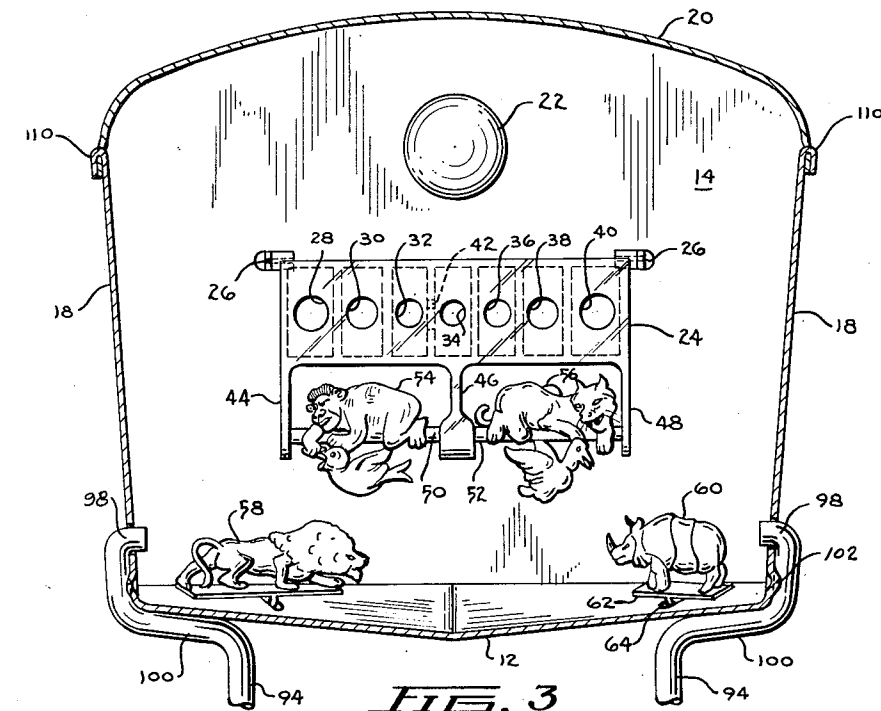
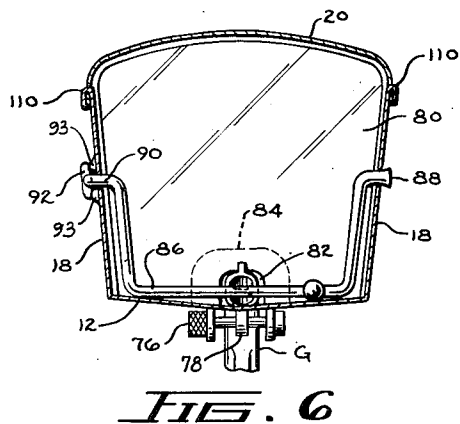
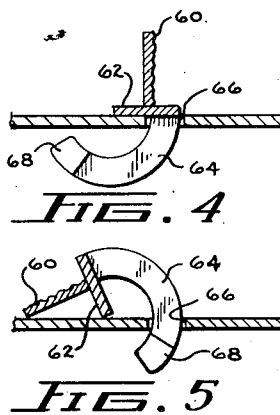
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RAYMOND J. LOHR
DANIEL SAKUTA
BY *James and Franklin*
ATTORNEY

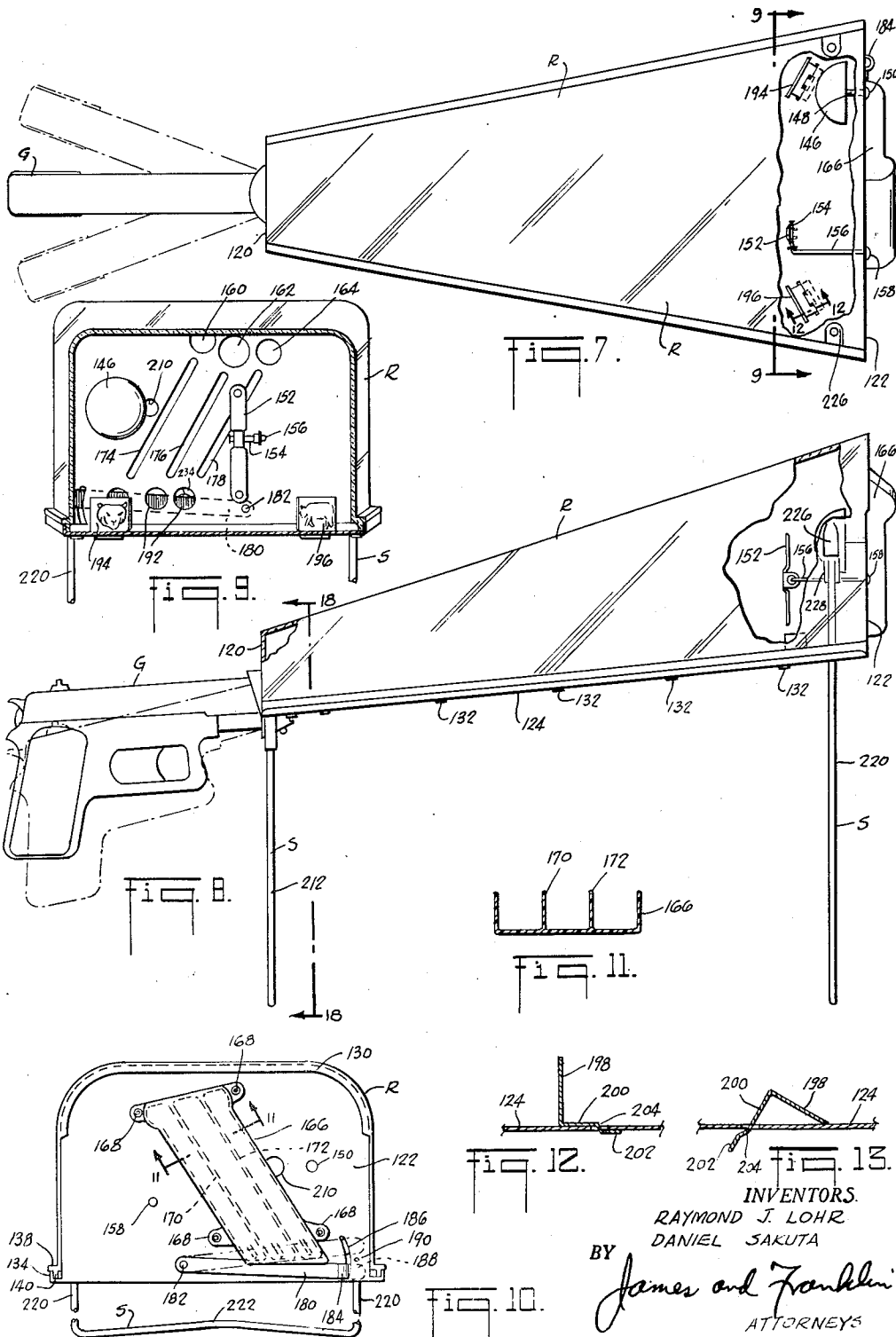
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4 Sheets-Sheet 3



INVENTORS.
RAYMOND J. LOHR
DANIEL SAKUTA
BY *James and Franklin*
ATTORNEYS

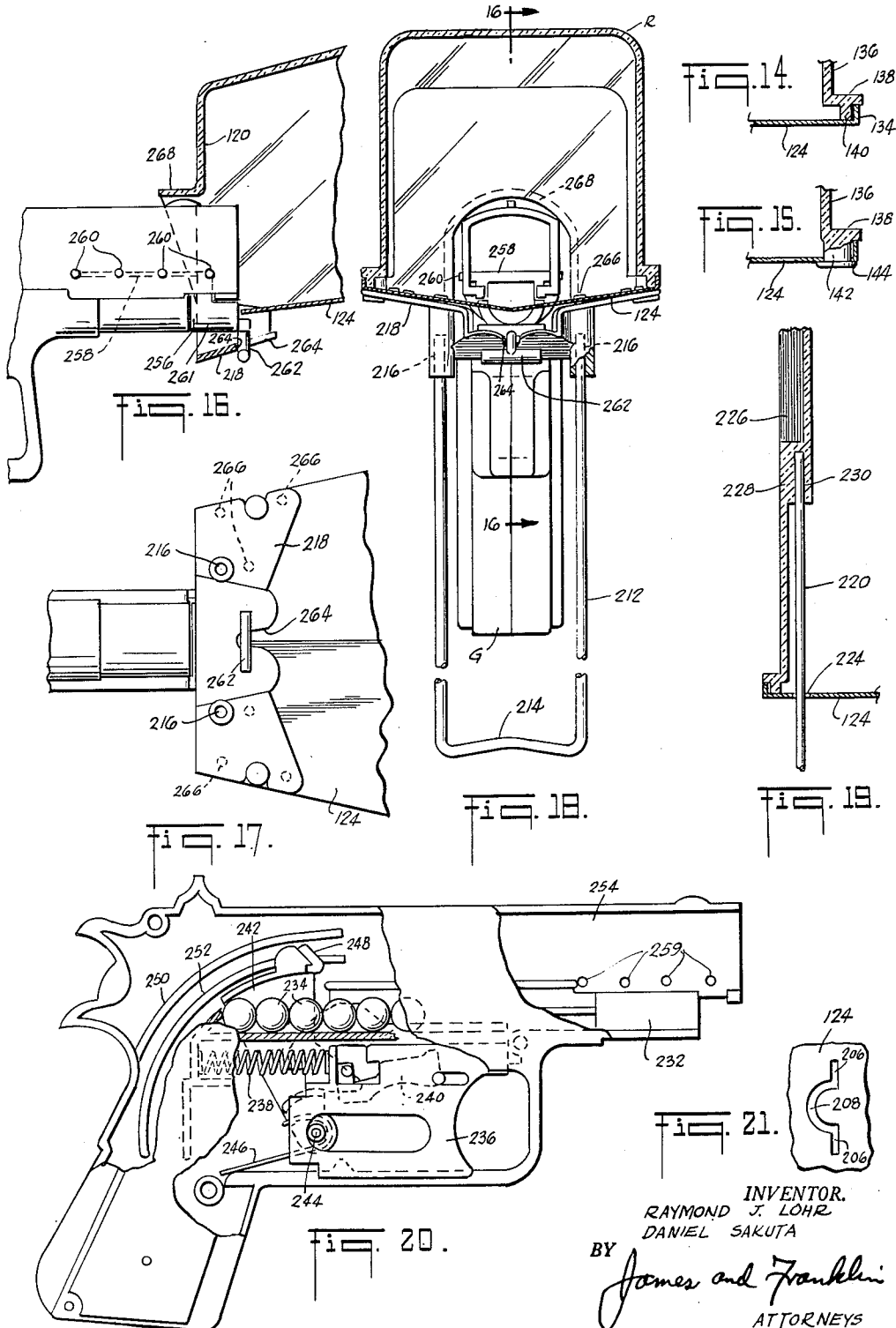
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4 Sheets-Sheet 4



INVENTOR.
RAYMOND J. LOHR
DANIEL SAKUTA
BY *James and Franklin*
ATTORNEYS

2,835,495

TOY SHOOTING RANGE

Raymond J. Lohr and Daniel Sakuta, Erie, Pa., assignors to Louis Marx & Company, Inc., New York, N. Y., a corporation of New York

Application January 10, 1955, Serial No. 480,649

15 Claims. (Cl. 273—101)

This invention relates to toys, and more particularly to a toy shooting gallery or range. The present application is a continuation-in-part of our application Serial No. 372,573, filed August 5, 1953, and now abandoned.

The primary object of the present invention is to generally improve toy shooting ranges. The toy comprises a range with a gun at the firing end for firing small balls at a variety of targets located at the target end. The range is enclosed in order to avoid loss of the balls, and a part or all of the sides and the upright wall at the firing end, as well as the top, are made transparent for full visibility to a person aiming and firing the gun.

Some features and objects of the present invention center about a target box or compartment. This has holes of different size through which balls are to be fired. The box is partitioned to form a separate compartment in back of each of the target holes in order to facilitate computing the score reached. There is means accessible outside the range to release the balls to roll from the compartments after a series of shots has been fired and scored.

A further object is to provide for return of the fired balls to the gun without opening the enclosed range. For this purpose the gun has a reload passage near its muzzle inside the enclosed range. The bottom of the range preferably slopes downward slightly toward the middle of the firing end, thereby providing for automatic return of the balls to the gun.

A further object is to provide an additional simple and inexpensive form of target which may be knocked over dramatically when hit, and yet which may be restored readily to upright position. This, and also the mounting of the gun, are aided by the fact that the base of the range preferably is elevated by suitable supports. These supports are preferably detachably mounted on the range for more compact packaging of the complete toy, for storage and shipment.

To accomplish the foregoing general objects, and other more specific objects which will hereinafter appear, our invention resides in the toy shooting range 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 shooting range embodying features of our invention;

Fig. 2 is a partially sectioned side elevation of the same;

Fig. 3 is a transverse section taken approximately in the plane of the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary section drawn to enlarged scale approximately in the plane of the line 4—4 of Fig. 1;

Fig. 5 is a fragmentary section similar to Fig. 4 but showing the position of the target after it has been hit;

Fig. 6 is a transverse section taken approximately in the plane of the line 6—6 of Fig. 2;

Fig. 7 is a plan view of a modified form of the invention;

Fig. 8 is a side elevation of the same;

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Fig. 9 is a transverse section taken approximately in the plane of the line 9—9 of Fig. 7;

Fig. 10 is a rear end view with a part of the elevated support removed;

Fig. 11 is a fragmentary section taken approximately in the plane of the line 11—11 of Fig. 10;

Fig. 12 is a fragmentary section taken approximately in the plane of the line 12—12 of Fig. 7, and drawn to enlarged scale;

Fig. 13 is a section similar to Fig. 12, but showing the target knocked over;

Fig. 14 is a fragmentary section through a lower edge between the plastic rivets;

Fig. 15 is a similar section taken through one of the plastic rivets;

Fig. 16 is a fragmentary longitudinal section at the muzzle of the gun;

Fig. 17 is a fragmentary bottom view at the firing end of the range;

Fig. 18 is a transverse section looking toward the muzzle of the gun, and taken approximately in the plane of the line 18—18 of Fig. 8;

Fig. 19 is a fragmentary section showing how one of the supports is detachably received;

Fig. 20 is a longitudinal section through a preferred form of gun used with or forming a part of the toy; and Fig. 21 is a detail.

Referring to the drawing, the toy comprises an enclosed housing or range R having a toy gun G pivotally secured at the firing end. The range is preferably elevated on generally U-shaped supports S.

The range is fully enclosed in order to prevent the loss of ammunition, which is preferably in the form of small steel balls. The range comprises a bottom wall 12 which slopes downward slightly from the target end 14 toward the firing end 16. In Fig. 3 it will be seen that the bottom 12 is somewhat trough-shaped, thus guiding the balls to the muzzle of the gun. The range further comprises side walls 18. The bottom wall 12 and the side walls 18 are preferably made of a single piece of sheet metal appropriately shaped and bent, as shown in Figs. 3 and 6. The top wall 20 is preferably made of a transparent plastic. It is upwardly convex, as is best shown in Fig. 3, and the side portions act also as a part of the side walls of the range, as will be seen from Figs. 2 and 3. The end wall 16 at the firing end is also made of transparent plastic, thus providing clear visibility for a person aiming and firing the gun.

The back wall 14 may be and preferably is opaque. It carries most of the targets of the shooting gallery. Thus a bell 22 may be mounted near the top of wall 14, and it constitutes one of the targets.

Another group of targets is provided by a transparent box 24 which is preferably mounted on the back wall 14 by means of pivots or trunnions 26. The box 24 is preferably molded in a single piece out of a suitable transparent plastic. It has a front wall (see Fig. 3) which is provided with a series of target holes 28, 30, 32, 34, 36, 38 and 40. These may differ in diameter as shown, and may be given different score values which may be marked on the back wall 14 or on the top wall of the target box. The inside of the box is divided by a series of partitions as is best shown in Figs. 1 and 3, so that balls fired through any one of the holes will be trapped in the appropriate compartment.

The box 24 is preferably open at the back, except that it rests against the back wall 14 (Fig. 2). It will be noted that the pivots 26 are so located that the box gravitationally assumes the closed position shown in Fig. 2. However, we provide means to tilt the box from the solid line position to the dotted line position, and in the present case this consists of a pin or finger 42 which projects rear-

wardly from the bottom of the box through a narrow slot in the back wall 14. When the pin 42 is pushed forward the box is tilted, and all of the balls trapped therein run out of the box down to the bottom of the range, and thence forwardly toward the gun.

In Figs. 2 and 3 it will be seen that the one-piece molded box includes also depending bearings 44, 46 and 48 which carry freely rotatable rods 50 and 52. These in turn carry targets 54 and 56. The targets are not quite balanced, and assume an upright position as shown. However, when hit they are set into a long rapid spinning motion, because they are nearly balanced.

Additional targets are shown at 58 and 60 in Figs. 1 and 3. These are preferably molded out of plastic and simulate an animal or other suitable target which normally rests in upright position on a flat base 62. The base is formed integrally with a downwardly and rearwardly curved arm shown at 64 in Fig. 4. This arm is preferably thin and passes through a narrow slot 66 in the bottom wall 12. The arm is enlarged at 68 to anchor the target against complete removal.

By comparing Figs. 4 and 5 it will be seen that when the target 60 is hit it falls over completely backward and remains in knocked over position. However, it is readily restored to upright position by moving one's finger along the bottom of the range and against the projecting part 68 of the finger 64, thus turning the target back up from the position shown in Fig. 5 to that shown in Fig. 4.

The gun G may be a conventional toy gun, and therefore requires no detailed description. The particular gun shown comprises a firing barrel 70 (Fig. 2), and a tubular magazine 72 extending beneath the barrel 70. This magazine will hold a considerable series of balls, which are fed gravitationally rearward and pass into the firing mechanism near the breech of the gun. The gun is fired by pulling a trigger 74, which compresses and then releases a spring to eject a single ball through the barrel 70.

The gun is anchored in position, but is pivotally mounted so that it may be aimed. This is indicated by the change from solid to broken line positions in Fig. 1 and in Fig. 2. The gun cannot be raised more than horizontal or a little below horizontal, and the target positions are such as not to require aiming in such direction which, of course, would have the disadvantage of permitting balls to roll back out of the magazine 72.

The aiming takes place about a free pivotal connection at the very muzzle of the gun, so that the muzzle remains in one location while the gun itself is aimed in different directions. The trough-like formation of the bottom 12 leads back to the muzzle position, and the balls roll into the magazine, as will be seen in Fig. 2. In the present case the attachment of the gun to the range is by means of a screw 76 which passes through a slotted slug 78 beneath the muzzle of the gun. The screw is preferably removable, as shown in Fig. 6, so that the gun may be freed from the range when packaging the toy.

The firing end of the range may be provided with two partition walls, in which case both are made of transparent plastic. In the present case one of these is the end wall 16, and the other is an intermediate wall 80 located substantially at the muzzle of the gun. This wall has an opening 82 (Fig. 6) only slightly larger than the muzzle, with insufficient clearance for escape of the balls. The end wall 16, however, has a much larger opening 84, in order to accommodate the aiming of the gun at a point further rearward on the barrel.

The normal gravitational return of the balls may be temporarily arrested by a dam 86. In the present case this is a bent piece of heavy wire, as is best shown in Fig. 6. One end 88 acts as a journal. Another part 90 acts as another journal, these being received in bearing holes in the side walls 18. The free outer end of the wire is bent sidewardly as shown at 92 in Figs. 1 and 2 to

form an operating means which may be used to turn the dam upward, whereupon the balls are freed to run into the gun. When the dam is down it may be held in that position by detent means, such as the dots or projections 93 struck outwardly in the sheet metal sides 18.

It will be understood that the support legs S are provided in order to elevate the game to make room for the gun G, including aiming thereof, and in order to provide the incline which returns the balls to the gun. The legs are preferably made foldable or detachable for more compact packaging. In the present case the legs 94 near the target end are foldable, while the legs 96 near the firing end are removable. The legs 94 are part of a U-shaped support bent out of heavy wire, and the ends of which act as journals 98 (Fig. 3). These are received in holes in the side walls 18. The legs are bent inward as shown at 100 in Figs. 1 and 3, before being bent downward, and the legs are also offset toward one side as shown by the displacement between journals 98 and legs 94 in Fig. 2. Thus the legs come to a positive stop when turned counterclockwise as shown in Fig. 2. They are additionally held in this position by detents 102 (Figs. 2 and 3) struck outwardly from the side walls 18. However, by pulling the legs 94 toward the firing end they may be folded up flat against the bottom of the toy. A partially folded position is shown in broken lines at 94' in Fig. 2.

The upper ends of the other legs 96 are received in sockets formed by oppositely bending parts of the side walls, as shown at 104 and 106 in Fig. 2. The legs are part of a U-shaped member, and the upward insertion of the legs is appropriately limited, as by bending the legs inwardly at the bottom, or by limiting the insertion at the top ends of the legs by means of stops 108. To remove the legs it is merely necessary to pull the same downward out of their sockets.

It will be understood that the legs 94 may be made pull-out legs, like the legs 96, and that the legs 96 may be made folding legs, like the legs 94.

The transparent top wall 20 may be secured to the metal side walls 18 by forming tongues 110 on the upper edges of the side walls, the said tongues being passed through mating slots in the lower edges of the top wall, and then bent downwardly as is best shown in Fig. 3. The transparent wall 16 may be secured to the metal bottom and side walls by appropriately bending the metal walls, and may, if desired, be secured to the transparent top wall 20 by using an appropriate solvent or cement, although this is not necessary. Similar remark applies to the inner transparent wall 80.

A modified form of the toy is illustrated in Figs. 7 through 20 of the drawing. Referring first to Figs. 7 and 8, the toy comprises, as before, a range R having a gun G pivotally secured thereto and supported in elevated position by supports S.

The range R comprises generally upright walls 120 and 122 at the firing and target ends of the game, respectively. There are side and top walls which in the present case are a continuous convex piece of transparent plastic. The bottom wall 124 is preferably made of sheet metal, as is the end wall 122, but the end wall 120 is preferably made of transparent plastic, and may be molded integrally with the side and top walls.

Similarly the end wall 122 may be and preferably is formed integrally with the bottom wall 124. The upper part of the end wall 122 is received within a flange or lip 130 (Fig. 10) molded integrally with the transparent main wall of the gallery. The bottom 124 is secured to the edges of the main wall by plastic rivets having heads shown at 132 in Fig. 8. The relation of the sheet metal bottom to the plastic wall, between rivets, is shown in larger scale in Fig. 14, it being seen that the bottom wall 124 has an upwardly turned edge or flange 134, and that the plastic wall 136 has a ledge 138 with a depending flange 140. The metal flange 134 fits outside the plastic flange 140 and beneath the ledge 138. The plastic rivets

are formed integrally with the plastic wall, as will be seen by reference to Fig. 15, in which rivet 142 has been molded integrally with the ledge 138, and passes through a mating hole in the bottom wall 124, and then is riveted or expanded as shown at 144, by the application of a hot tool.

The rear wall 122 may be considered a target wall. This wall and the bottom 124 are appropriately lithographed while they are still in flat sheet metal form. One target is a bell 146 (Figs. 7 and 9) carried by a stud 148 which is riveted to the rear wall, as indicated at 150.

Another target is a rotatable member 152, pivoted on the end 154 of a stud 156 which is riveted to the rear wall 122, as indicated at 158. The member 152 comprises upper and lower vanes disposed diametrically and having rearwardly bent ears between the upper and lower vanes, these ears being perforated to freely receive the pivot pin 154. The vanes are set into spinning motion when either the upper vane or the lower vane is struck by a ball.

The rear wall 122 again forms a part of a cumulative scoring compartment. For this purpose it is provided with three target holes of varying dimension, indicated at 160, 162 and 164 in Fig. 9. These lead into three compartments formed by a partitioned molded member 166 which is secured to the rear wall 122, as by means of four eyelets 168. The member 166 includes partitions 170 and 172 which separate any balls received through one target hole, from those received through another target hole. The balls fall to the bottom, and the number of balls may be seen and counted because of slots cut through the rear wall, as indicated at 174, 176, and 178 in Fig. 9. These slots extend parallel to the compartments and are wide enough to expose the balls for count, but are too narrow to permit the balls to escape from the compartments back into the range.

Instead the balls are superposed until released by downward movement of a normally raised stop arm 180 best shown in Fig. 10. This stop arm is disposed between the target wall and the compartment member 166, and is pivoted at 182, and may be moved up or down by means of a handle portion 184. The free end of arm 180 passes through a short arcuate slot 186 in rear wall 122 and is turned parallel to the wall, as shown at 188. It is held in either down position, shown in solid lines, or up position, shown in dotted lines, by means of a detent 190 (Fig. 10) struck inward from the rear wall.

Referring now to Fig. 9, it will be seen that there is a ball discharge hole 192 at the lower end of each of the three compartments. These are ordinarily blocked by the stop strip 180 which covers at least the lower part of each hole when it is in raised position, as shown in Fig. 9. However, when the stop strip is moved down to the lowered position, shown in Fig. 10, the balls are free to roll through the holes 192 into the range for return to the gun.

The part 166, including the ears and partitions, are preferably molded out of a single integral piece of plastic, and at the lower end the inside slopes toward the discharge holes 192, to insure flow of the balls out of the compartments.

The complete range includes two additional targets, these being pivoted on the bottom wall. These targets are shown at 194 and 196 in Fig. 9. Each target is formed of sheet metal, and referring to Fig. 12, it comprises an upright portion 198 and a horizontal portion 200. There is also a part 202 which is disposed outside the range and which is accessible for restoring the target to upright position after it has been knocked down. The parts 200 and 202 are connected by spaced connections 204. These are preferably stepped downward and may pass through slots in the bottom wall.

Referring to Fig. 21, the spaced slots 206 may be connected by an arcuate slot 208, thus making it possible to assemble the target with the bottom wall. Targets 194 and 196 (Fig. 7) are located in these slots. It will be understood that the target normally rests in upright position, as shown in Fig. 12. When struck by a ball it is knocked over to the position shown in Fig. 13. The target may be restored to upright position by brushing one's hand along the bottom wall, thus moving the part 202 shown in Fig. 13 rearward until it rests against the bottom wall, as shown in Fig. 12.

The rear wall 122 may be provided with a hole 210 (Fig. 10) which is large enough to pass one of the balls fired by the gun. However, the hole is partially resiliently blocked by the member 166, and there is no danger of any of the balls escaping from the range. The entrant hole is provided primarily so that the toy may be shipped with a supply of balls confined in a small envelope, instead of rolling around loosely in the open range, where they would be very noisy during handling of the boxed range in stores, or during shipment and storage. The instructions accompanying the game explain that the balls should be pushed one by one through the entrant hole 210, thus completing the assembly of the toy.

The supports S are made of stiff U-shaped wire of heavy gauge. The support 212 at the firing end is quite narrow, as will be seen in Fig. 18. The bottom end is preferably bent upwardly somewhat in the middle, as shown at 214. The upper ends are preferably initially spread apart so that they will exert an outward pressure when squeezed together to the parallel relation shown in Fig. 18. The upper ends are received in mating socket holes 216 preferably formed in a diecast gun-supporting member to be described later. This member has considerable surface, as shown at 218 in Fig. 17, and is securely riveted to the bottom of the range, thus providing a firm socket for the support 212.

The other support 220 is a U-shaped member of much greater width, it having a width approaching that of the range at the target end. The lower end is preferably bent upward at the center, as shown at 222 in Fig. 10. The outer ends preferably diverge and must be squeezed together somewhat when being assembled with the range. As seen in Fig. 19, the bottom wall 124 of the range is apertured at 224 to receive the legs of the support 220. The plastic side wall of the range is indented at 226 and is thickened at 228 to provide a boss in which a socket hole 230 is molded to receive the upper end of support 220.

It will thus be evident that the range is elevated to a substantial height by the supports S, but the latter are readily detached from the range, thus making the toy much more compact for packaging.

The gun G is preferably an accurately repeating toy gun described in greater detail and claimed in our copending application, Serial No. 480,728 filed concurrently herewith. Referring to Fig. 20, the gun comprises a lower barrel 232 which acts as a magazine receiving a line of balls 234. The trigger 236 is normally urged forward by a compression spring 238. When the trigger is pulled rearward it moves a sear 240 against a catapult arm 242 pivoted at 244 and urged forward by a spring 246. The catapult arm has a sloping rubber pad 248 and cooperates with arcuate top and side guide rails 250 and 252 formed in the body of the gun. A part of the trigger plate acts as a cam to move the rearmost ball upward between the side guides 252 and the top guides 250, whereupon the sear releases the rearwardly sprung catapult arm, which then flies forward and propels the ball on a trajectory accurately determined by the guides 250. The top barrel 254 of the gun is preferably large in cross-section, so much so that the ball does not touch any part of the barrel during its flight. Because of the accurately guided catapult action the balls tend to follow

one another over a uniform trajectory, thus making possible corrective firing until a desired target is struck.

The manner in which the gun is secured to the range may be described with reference to Figs. 16-18 of the drawing. The gun body is made of two molded plastic sides secured together with a diecast metal member 256 therebetween. In Fig. 16 it will be seen that this includes a plate 258 which divides the upper and lower barrels of the gun and which includes a series of outwardly projecting rivets 260 which, when expanded, securely anchor the parts together. In Fig. 20 this diecast part is omitted, leaving only the holes 259. A concave portion 261 acts as the lower part of the lower barrel at the muzzle, and this in turn carries an inverted T-shaped fulcrum member 262. The stem of the fulcrum member is received in a slot 264 formed in a lower or bottom part of the relatively large diecast plate 218 previously referred to. The raised end portions or wings of the bottom plate are riveted directly against the sheet metal bottom 124 by means of a series of rivets indicated at 266 (Figs. 17 and 18), these preferably being molded integrally with the diecast plate. The rivets pass upwardly through holes in the sheet metal, and are expanded at their upper ends, as shown in Fig. 18. The riveted portions of the diecast member 218 are disposed somewhat at an angle, and thus help maintain the sheet metal bottom 124 in the desired trough shape for guiding the balls back to the lower barrel of the gun.

The fulcrum 262 cannot move forward out of the slot 264 because the muzzle of the gun bears against the forward edge of the sheet metal bottom. In assembling the toy, the gun is added to the diecast mount 218 before the latter is riveted by means of the integral metal rivets to the sheet metal bottom, and that in turn is done before the sheet metal bottom is riveted by means of the integral plastic rivets to the transparent plastic housing. The bell stud 148 and spinner stud 156 are riveted to the sheet metal rear wall, and the exterior compartment 166 is eyeletted to the rear wall; and the small pivoted targets 194 and 196 are mounted on the bottom wall, all before the metal walls are secured to the plastic walls.

Referring now to Figs. 16 and 18, the transparent end wall 30 is preferably molded with a visor-shaped flange 268. This is so shaped and dimensioned that on the one hand the gun may be aimed upward and sideward enough to cover the entire rear target area at rear wall 122, but on the other hand it cannot be aimed downward. The furthest that the grip of the gun can be raised brings the gun to or not quite to a horizontal position, but it cannot be pointed downward. This does not affect aiming, for the entire target area is somewhat higher than the gun. It prevents the supply of balls from rolling out of the lower part of the gun, and permits a continuous return of balls during the firing operation so that a person using the toy may keep on firing the gun continuously until desired targets have been struck.

It is believed that the construction, assembly, and method of use of our improved toy shooting range, as well as the advantages thereof, will be apparent from the foregoing detailed description. The shooting range is fully enclosed so that there is no danger of losing the round balls. The gun is open for reloading at a point within the enclosed range and is thereby adapted to be reloaded without opening the range. In preferred form the bottom of the range slopes downward and inward toward the said opening of the gun for automatic reloading so that the gun seems to have unlimited ammunition. The targets include pivoted targets which are knocked over when hit and there are means accessible outside the enclosed range for restoring the targets to upright position. The range is elevated on suitable supports but these are made removable or collapsible so that the toy is more compact for shipment and storage. One form of target includes a plurality of target holes through which the balls may be fired, with compartments behind the

holes to receive the balls so that they may be counted for score value. In such case the toy is provided with control means accessible outside the enclosed housing to release the balls for return to the gun.

It will be apparent that while we have shown and described our invention in several preferred forms, changes may be made in the structures shown without departing from the scope of the invention, as sought to be defined in the following claims.

We claim:

1. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, a magazine type gun affording rapid repeat shooting of small balls, said gun having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at a point near the muzzle end of the gun and within said range immediately adjacent one of the aforesaid walls enclosing the range and thereby adapted to be reloaded from the range by flowing the balls along said adjacent wall and directly into said magazine without opening the range.

2. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, said side and top walls and said end wall at the target end being molded out of a single body of transparent plastics material; a magazine type gun affording rapid repeat shooting of small balls, said gun having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at a point near the muzzle end of the gun and within said range immediately adjacent one of the aforesaid walls enclosing the range and thereby adapted to be reloaded from the range by flowing the balls along said adjacent wall and directly into said magazine without opening the range.

3. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, a magazine type gun affording rapid repeat shooting of small balls, said gun having a pistol grip and having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, U-shaped supports bent out of heavy metal rod, the spaced upper ends of the U-shaped supports being detachably secured to said range at the target and firing ends and serving to elevate said range, the resulting elevation of the range affording room for the pistol grip and for aiming of the gun, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at a point near the muzzle end of the gun and within said range immediately adjacent one of the aforesaid walls enclosing the range and thereby adapted to be re-

loaded from the range by flowing the balls along said adjacent wall and directly into said magazine without opening the range.

4. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, said side and top walls and said end wall at the target end being molded out of a single body of transparent plastics material, a magazine type gun affording rapid repeat shooting of small balls, said gun having a pistol grip and having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, supports serving to elevate the range in order to afford room for the pistol grip and for aiming of the gun, said supports including a U-shaped support bent out of heavy metal rod, said range having sockets to detachably receive the upper ends of the said U-shaped support, at least one of said sockets comprising an upwardly directed hole formed in a boss molded integrally with a transparent side wall, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at a point near the muzzle end of the gun and within said range immediately adjacent one of the aforesaid walls enclosing the range and thereby adapted to be reloaded from the range by flowing the balls along said adjacent wall and directly into said magazine without opening the range.

5. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, a magazine type gun affording rapid repeat shooting of small balls, said gun having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at a point near the muzzle end of the gun and within said range immediately adjacent one of the aforesaid walls enclosing the range and thereby adapted to be reloaded from the range by flowing the balls along said adjacent wall and directly into said magazine without opening the range, a pivoted target in said range near the target end and adapted to be knocked over when hit by a ball fired from the gun, and means accessible outside the range for restoring said pivoted target to upright position after it has been knocked over.

6. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, a magazine type gun affording rapid repeat shooting of small balls, said gun having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at a point near the muzzle end of the gun and within said range immediately adjacent one of the aforesaid walls enclosing the range and thereby adapted to be reloaded from the range by flowing the balls along said adja-

cent wall and directly into said magazine without opening the range, the target end of the range having a target hole through which balls may be fired, and having a discharge hole beneath said target hole for returning the balls to the range, and having an observation slot with its upper end near said target hole and with its lower end near said discharge hole, said slot having a width less than the diameter of the balls, a channel-like compartment connecting said holes behind said slot to hold the balls fired through the target hole so that they may be counted through the slot for score value, means for preventing discharge of balls through the discharge hole during firing, and means accessible outside the range for releasing said means so that the balls may return gravitationally through the discharge hole to the interior of the range.

7. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, said bottom wall sloping downward from the target end to the firing end, a magazine type gun affording rapid repeat shooting of small balls, said gun having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at the muzzle end of the gun beneath the simulated barrel of the gun at a point within said range immediately adjacent the aforesaid bottom wall, whereby said magazine is gravitationally reloaded from the range by gravitational flow of the balls along said bottom wall and thence directly into the open end of said magazine without opening the range.

8. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, said side and top walls and said end wall at the target end being molded out of a single body of transparent plastics material, and said bottom wall being made out of a sheet material secured to the bottom edges of said transparent side walls, said top and bottom walls converging in width from the target end toward the firing end of the range, said bottom wall sloping downward from the target end to the firing end, a magazine type gun affording rapid repeat shooting of small balls, said gun having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at the muzzle end of the gun beneath the simulated barrel of the gun at a point within said range immediately adjacent the aforesaid bottom wall, whereby said magazine is gravitationally reloaded from the range by gravitational flow of the balls along said bottom wall and thence directly into the open forward end of said magazine without opening the range.

9. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, said bottom wall sloping downward from the target end to the firing end, a magazine type gun affording rapid repeat

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shooting of small balls, said gun having a pistol grip and having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, U-shaped supports bent out of heavy metal rod, the spaced upper ends of the U-shaped supports being collapsibly secured to said range at the target and firing ends and serving to elevate said range, the resulting elevation of the range affording room for the pistol grip and for aiming of the gun, and a substantial quantity of balls, confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at the muzzle end of the gun beneath the simulated barrel of the gun at a point within said range immediately adjacent the aforesaid bottom wall, whereby said magazine is gravitationally reloaded from the range by gravitational flow of the balls along said bottom wall and thence directly into the open forward end of said magazine without opening the range.

10. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, said side and top walls and said end wall at the target end being molded out of a single body of transparent plastics material, said bottom wall sloping downward from the target end to the firing end, a magazine type gun affording rapid repeat shooting of small balls, said gun having a pistol grip and having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, two U-shaped supports bent out of heavy metal rod, said range having four upright sockets to detachably receive the upper ends of the two U-shaped supports, at least some of said sockets comprising upwardly directed holes formed in bosses molded integrally with the transparent side walls, said supports serving to elevate the range in order to afford room for the pistol grip and for aiming of the gun, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at the muzzle end of the gun beneath the simulated barrel of the gun at a point within said range immediately adjacent the aforesaid bottom wall, whereby said magazine is gravitationally reloaded from the range by gravitational flow of the balls along said bottom wall and thence directly into the open forward end of said magazine without opening the range.

11. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, said bottom wall sloping downward from the target end to the firing end, a magazine type gun affording rapid repeat shooting of small balls, said gun having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at the muzzle end of the gun beneath the simulated barrel of the gun at a point within said range immediately adjacent the aforesaid bottom wall, whereby said magazine is gravitationally reloaded from the range by

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gravitational flow of the balls along said bottom wall and thence directly into the open forward end of said magazine without opening the range, a pivoted target in said range near the target end and adapted to be knocked over when hit by a ball fired from the gun, and means accessible outside the range for restoring said pivoted target to upright position after it has been knocked over.

12. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, said bottom wall sloping downward from the target end to the firing end, a magazine type gun affording rapid repeat shooting of small balls, said gun having its muzzle end pivotally secured at the firing end of the range whereby said gun may be aimed without appreciable transverse displacement of said pivoted muzzle end, and a substantial quantity of balls confined within said enclosed range, the magazine of said gun having a length approximately that of the simulated barrel portion of the gun and long enough to receive a substantial quantity of balls, said magazine being disposed longitudinally of and being movable with the barrel portion, and said magazine being open at the muzzle end of the gun beneath the simulated barrel of the gun at a point within said range immediately adjacent the aforesaid bottom wall, whereby said magazine is gravitationally reloaded from the range by gravitational flow of the balls along said bottom wall and thence directly into the open forward end of said magazine without opening the range, the target end of the range having a target hole through which balls may be fired, and having a discharge hole beneath said target hole for returning the balls to the range, and having an observation slot with its upper end near said target hole and with its lower end near said discharge hole, said slot having a width less than the diameter of the balls, a channel-like compartment connecting said holes behind said slot to hold the balls fired through the target hole so that they may be counted through the slot for score value, means for preventing discharge of the balls through the discharge hole during firing, and means accessible outside the range for releasing said means so that the balls may return gravitationally through the discharge hole to the interior of the range.

13. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, at least some of said walls being transparent, said bottom wall sloping downward from the target end to the firing end, a gun affording rapid repeat shooting of small balls, said gun being pivotally secured at the firing end of the range, and a substantial quantity of balls confined within said enclosed range, the said gun being reloaded from the range by gravitational flow of the balls along said bottom wall to the gun, the target end of the range having a target hole through which balls may be fired, and having a discharge hole beneath said target hole for returning the balls to the range, and having an observation slot with its upper end near said target hole and with its lower end near said discharge hole, said slot having a width less than the diameter of the balls, a channel-like compartment connecting said holes behind said slot to hold the balls fired through the target hole so that they may be counted through the slot for score value, means for preventing discharge of the balls through the discharge hole during firing, and means accessible outside the range for releasing said means so that the balls may return gravitationally through the discharge hole to the interior of the range.

14. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, said side and top walls and said end wall at the target end being molded out of a single body of transparent plastics material, said bottom wall being made out of sheet metal

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secured to the bottom edges of said transparent side walls, said bottom wall sloping downward from the target end to the firing end, a gun affording rapid repeat shooting of small balls, said gun having a pistol grip and being pivotally secured at the firing end of the range, a substantial quantity of balls confined within said enclosed range, said gun being reloaded from the range by gravitational flow of the balls along said bottom wall to the gun, two U-shaped supports bent out of heavy metal rod, the firing end of said range and the target end of said range having upright sockets to detachably receive the four upper ends of the two U-shaped supports, at least some of said sockets comprising an upwardly directed hole formed in a boss molded integrally with a transparent side wall, said supports serving to elevate the range in order to afford room for the pistol grip and for aiming of the gun.

15. A toy shooting range comprising a bottom wall, end walls at the target end and at the firing end and side and top walls fully enclosing the shooting range, said side and top walls and said end wall at the target end being molded out of a single body of transparent plastics material, said bottom wall being made out of sheet metal secured to the bottom edges of said transparent side walls, said bottom wall sloping downward from the target end to the firing end, said top and bottom walls converging in width from the target end toward the firing end of the range, a gun affording rapid repeat shooting of small balls, said gun having a pistol grip and being pivotally secured at the firing end of the range, a sub-

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stantial quantity of balls confined within said enclosed range, said gun being reloaded from the range by gravitational flow of the balls along said bottom wall to the gun, two U-shaped supports bent out of heavy metal rod, the firing end of said range and the target end of said range having upright sockets to detachably receive the four upper ends of the two U-shaped supports, at least some of said sockets comprising two superposed parts, the lower part being a hole through the aforesaid sheet metal bottom wall, and the upper part being an upwardly directed hole formed in a boss molded integrally with a transparent side wall in alignment with the bottom hole, said supports serving to elevate the range in order to afford room for the pistol grip and for aiming of the gun.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 2,835,495

May 20, 1958

Raymond J. Lohr et al.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 7, line 43, for the numeral "30" read -- 120 --; column 8, line 34, column 9, line 7, column 10, line 43, column 11, line 27, column 12, line 73, and column 13, line 21, for "target", in each occurrence, read -- firing --.

Signed and sealed this 31st day of March 1959.

(SEAL)

Attest:

KARL H. AXLINE

Attesting Officer

ROBERT C. WATSON
Commissioner of Patents