April 1, 1924. 1,489,191

F. R. CHESTER

SHOOTING GALLERY

Original Filed Oct. 27, 1921 5 Sheets-Sheet 1

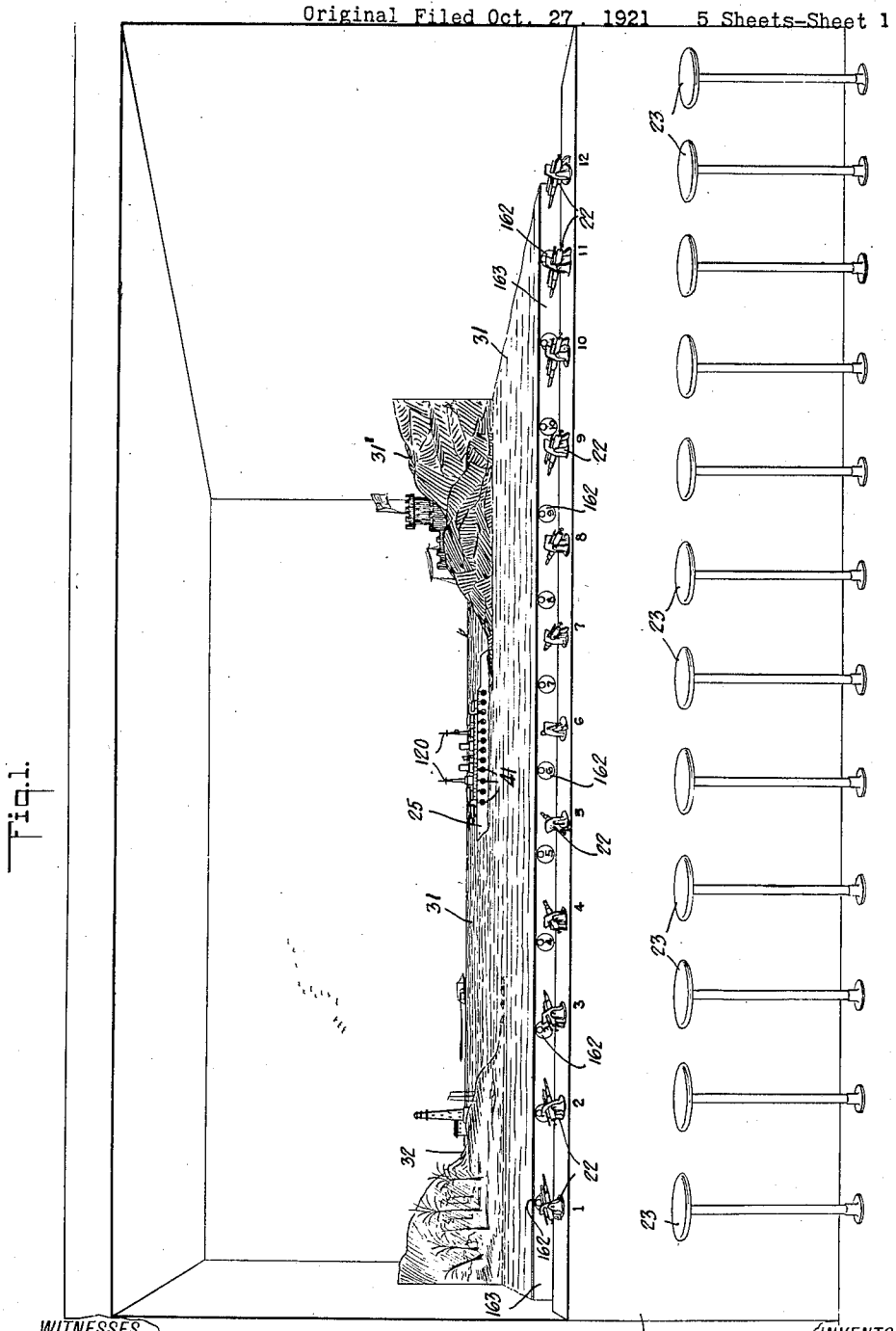

Fig. 1.

WITNESSES

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April 1, 1924. 1,489,191

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SHOOTING GALLERY

Original Filed Oct. 27, 1921 5 Sheets-Sheet 2

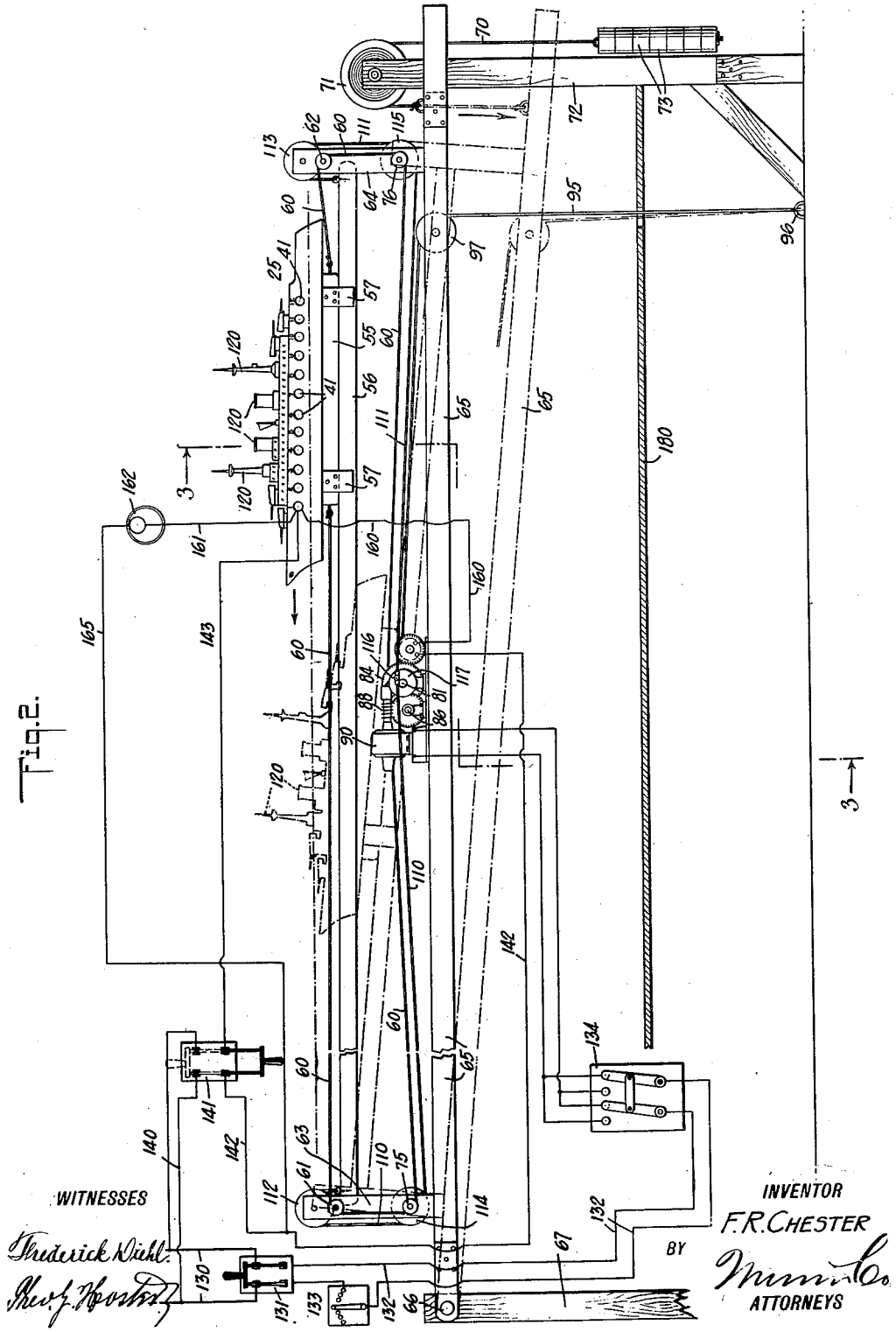

Fig. 2.

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SHOOTING GALLERY

Original Filed Oct. 27, 1921 5 Sheets-Sheet 3

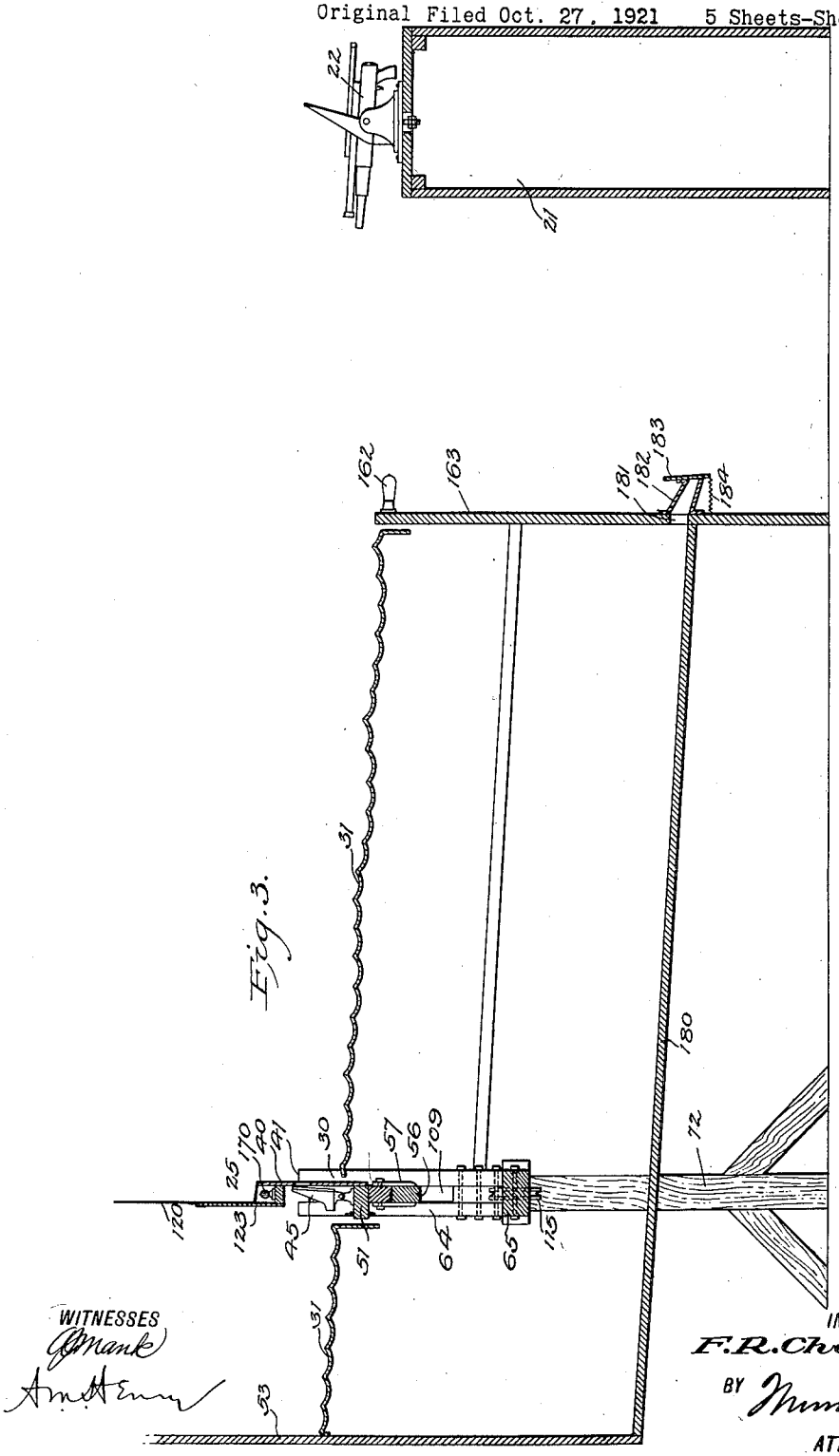

Fig. 3.

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SHOOTING GALLERY

Original Filed Oct. 27, 1921 5 Sheets-Sheet 4

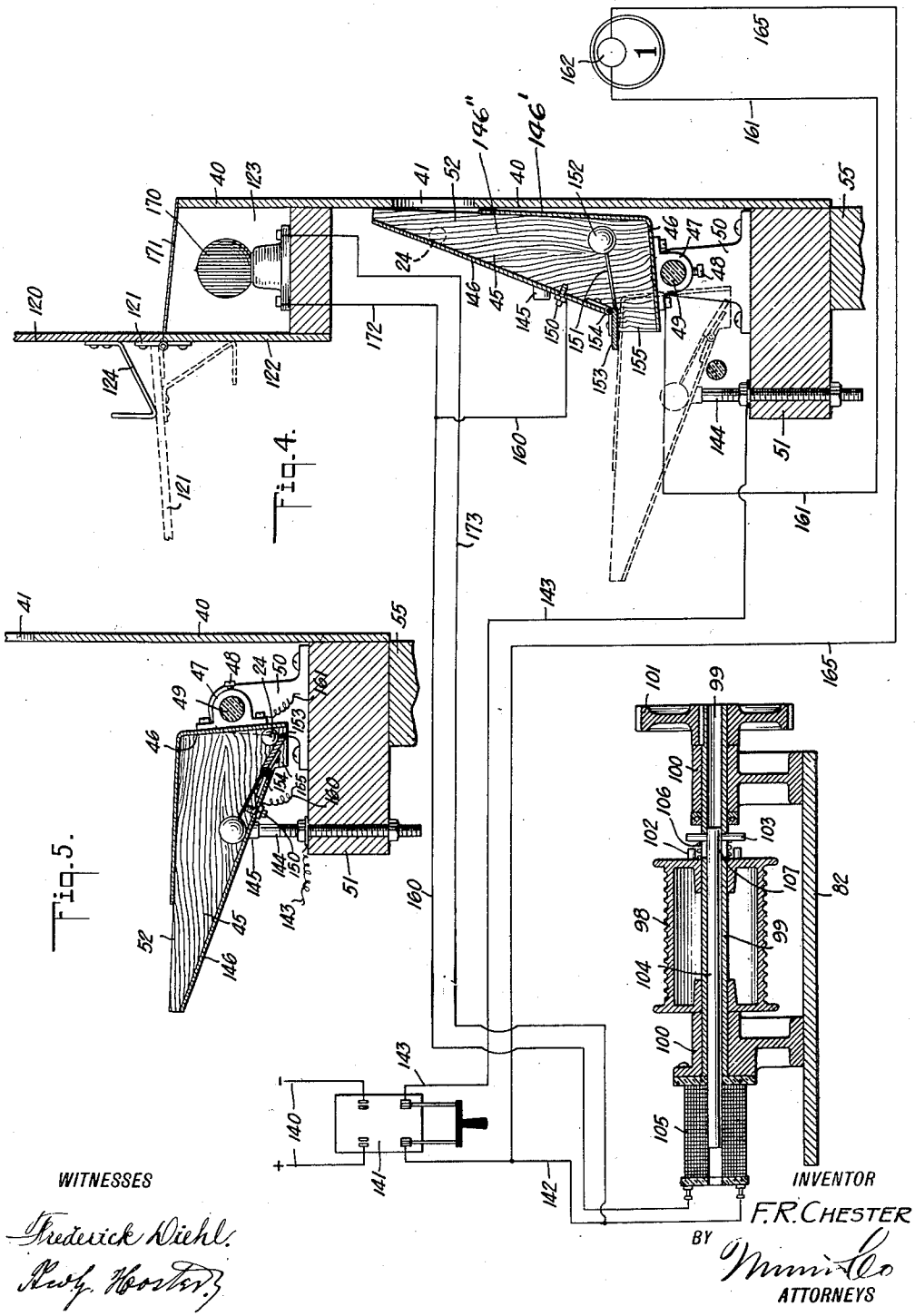

Fig. 4.

Fig. 5.

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SHOOTING GALLERY

Original Filed Oct. 27, 1921 5 Sheets-Sheet 5

Fig. 6.

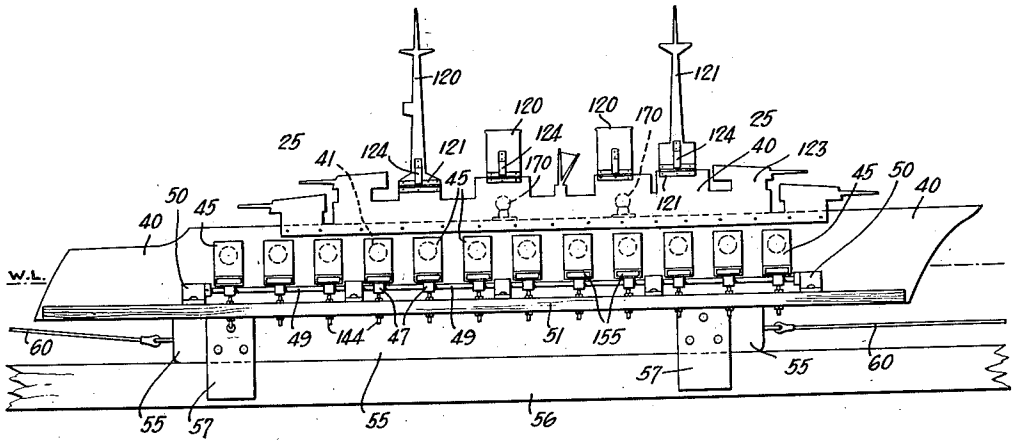


Fig. 7.

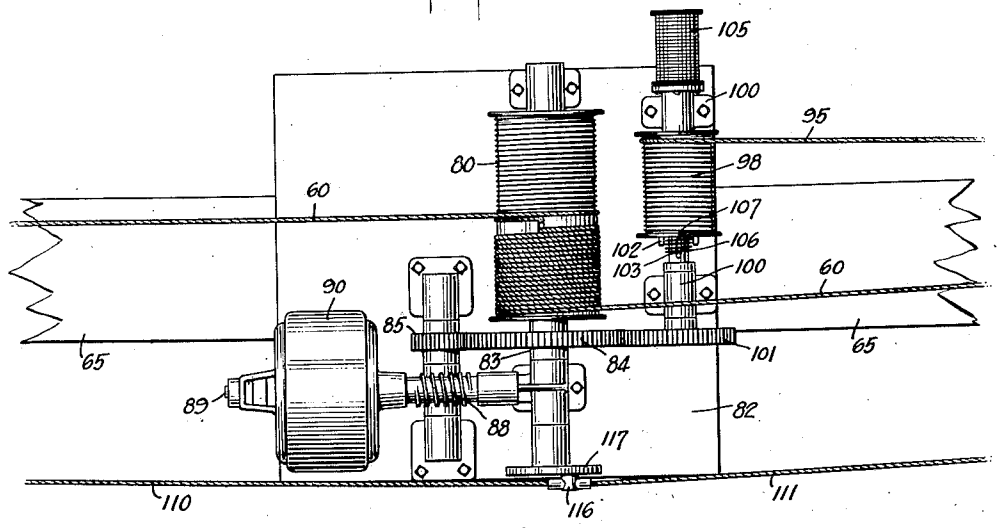
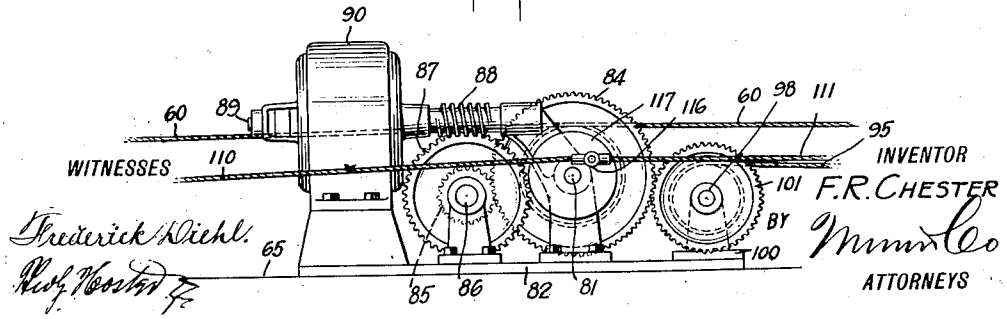


Fig. 8.



WITNESSES

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Patented Apr. 1, 1924. 1,489,191

UNITED STATES PATENT OFFICE.

FRANK REGANELD CHESTER, OF ASBURY PARK, NEW JERSEY.

SHOOTING GALLERY.

Application filed October 27, 1921, Serial No. 510,724. Renewed October 9, 1923.

To all whom it may concern:

Be it known that I, FRANK R. CHESTER, a citizen of the United States, and a resident of Asbury Park, in the county of Monmouth and State of New Jersey, have invented a new and Improved Shooting Gallery, of which the following is a full, clear, and exact description.

The invention relates to amusement apparatus and its object is to provide a new and improved shooting gallery for use in pleasure resorts, exhibition grounds, fairs, parks, and other places, and arranged to enable a number of contestants or players to contest for marksmanship and to render the contest not only highly interesting and exciting to the players or participants but also to the onlookers.

Another object is to permit a number of contestants to fire at about the same time on a distant target to contest for a prize awarded to the winner.

Another object is to render the chances of success to all contestants such that the contestant first showing a predetermined amount of skill in a particular contest wherein any one contestant shows an equal amount of skill, wins the contest.

Another object is to construct a shooting gallery which is highly attractive in its various features practically providing an interesting show for the participants as well as for the onlookers.

With these and other objects in view, the invention consists of certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front perspective view of the improved shooting gallery;

Figure 2 is an enlarged sectional front view of the main target and the means for imparting motion thereto, the section being on the line 2—2 of Figure 3;

Figure 3 is a cross section of the improved shooting gallery on the line 3—3 of Figure 2;

Figure 4 is an enlarged cross section of the main and minor targets, the latter being set up ready for being hit by a projectile or a missile;

Figure 5 is a similar view of a portion of the same with a minor target in position after being hit by a projectile or missile;

Figure 6 is an enlarged rear elevation of the main and minor targets;

Figure 7 is an enlarged plan view of the propelling means for the main target; and

Figure 8 is a side elevation of the same.

The building 20 in which the shooting gallery is located is provided at the front with a counter 21 on which is mounted a battery of guns 22 arranged in spaced relation and each adapted to be manipulated by a contestant or player seated on a seat 23 arranged in front of the counter 21. Each of the guns 22 is adapted to fire a missile or projectile 24 onto a distant main target 25, preferably in the form of a miniature representation of a warship or other marine vessel, as plainly shown in Figures 1, 2, 3 and 6. The main target 25 extends in a slot 30 formed in a flexible member 31 representing water to make it appear to the player or onlooker in front of the counter 21 as if floating on water. Other scenery, such as a fort 31′, for instance, and a lighthouse 32, appears on opposite sides of the flexible member 31 in front of the slot 30, and in practice the target 25 is mounted to travel in the slot 30 from the right to the left, first behind the piece of scenery 31′ to gradually appear in full view and eventually reach the other piece of scenery 32, at which point the target is intended to disappear and be returned below the flexible member 31 and rise to uppermost position behind the piece of scenery 31′ to the starting point. The main target 25 is provided in its front with a flat vertically disposed plate 40 representing the side of the marine vessel, and in this plate 40 is formed a longitudinal row of openings or portholes 41 for the passage of the missiles or projectiles 24 fired from the guns 22. The number of apertures or portholes 41 corresponds to the number of guns 22 on the counter 21, and the contestants or

players in charge of the guns 22 aim to direct the missiles from their guns into the corresponding apertures 41. The guns 22 are preferably numbered consecutively, as shown in Figure 1, and the contestant or player of say gun No. 1 is supposed to direct the missile or projectile fired from this gun into the first opening 41 in the target 25, and the other contestants are supposed to direct similarly the missiles or projectiles from their guns into the corresponding openings 41 numbered consecutively the same as the guns 22.

Coacting with each opening 41 is a minor target 45, preferably in the form of a box-like structure (see Figures 4 and 5) arranged in the rear of the plate 40 and provided at its metallic bottom 46 with eyes 47 secured by set screws 48 or other fastening means to a shaft 49 journaled in suitable bearings 50 attached to a base 51 to which the lower end of the plate 40 is secured. The minor target 45 is provided in its front with an opening 52 in register with the corresponding opening 41 in the main target plate 40 to allow the missile or projectile 24 to pass through the registering openings 41 and 52 into the minor target 45 to strike the back thereof and thus cause this minor target to swing rearwardly and downwardly thereby causing the shaft 49 to turn and with it the remaining minor targets. Thus when a missile or projectile 24 passes through any one pair of registering openings 41, 52 into a corresponding minor target 45 then all the minor targets swing downwardly and rearwardly into inactive position, shown in dotted lines in Figure 4 and in full lines in Figure 5. Missiles or projectiles subsequently fired and passing through the openings 41 do not affect the minor target 45 but simply pass to the rear of the plate 40 to strike a back wall 53 and rebound from the same and to drop on to the rear portion of the flexible member 31.

The main target 25 when in the form of a marine vessel, as shown, is given a traveling motion, a pitching motion and a sinking motion, and for this purpose the following arrangement is made: From the base 51 depends a bar 55 slidingly engaging the top of a rail 56 extending sidewise, and the said bar is provided with guide plates 57 straddling the rail 56 to hold the target 25 against tipping over, at the same time guiding the target on the rail 56. The front and rear ends of the bar 55 are connected with the ends of a rope, cable or other flexible connection 60 extending over guide pulleys 61, 62 journaled on uprights 63, 64 erected on a beam 65 fulcrumed at its left-hand end at 66 on a post 67 forming part of a general framework set on the floor of the shooting gallery 20. The free end of the beam 65 is hung on one end of a rope, cable or other flexible connection 70 extending over a pulley 71 mounted on the upper end of a post 72 forming part of the general framework, and on the flexible connection 70 are hung weights 73 for counterbalancing the beam 65 and the parts mounted thereon including the target 25. Normally the beam 65 is in horizontal position, as shown in Figure 2. The flexible connection 60 after leaving the guide pulleys 61, 62 passes around guide pulleys 75, 76 journaled on the uprights 63 and 64, and then the flexible connection 60 winds on a drum 80 having its shaft 81 journaled in suitable bearings arranged on a bed 82 attached to the beam 65. The hub 83 of the drum 80 is provided with a gear wheel 84 in mesh with a pinion 85 secured on a shaft 86 journaled on the bed 82, and on this shaft 86 is secured a worm wheel 87 in mesh with a worm 88 formed or secured on a shaft 89 of a motor 90, preferably of the electric reversing type of usual construction, and mounted on the bed 82. Thus when the motor 90 is running in one direction one end of the flexible connection 60 is wound up on the drum 80 while the other end unwinds thus causing the target 25 to travel from the right to the left on the rail 56, and when the motor 90 is reversed then a return traveling movement is given to the target 25 and preferably at a higher speed and at the time the target 25 is in lowermost position, that is, below the flexible member 31 representing the ocean or other water way.

In order to impart a sinking movement to the target 25 the beam 65 is caused to swing downward from the horizontal position shown in full lines in Figure 2, into the inclined position shown in dotted lines in the said figure. For this purpose use is made of a rope, cable or other flexible connection 95 secured at one end to a staple 96 or other device attached to the floor of the shooting gallery 20, and the said flexible connection 95 extends over a pulley 97 journaled on the beam 65 and the said flexible connection winds and unwinds on a drum 98 mounted to rotate loosely on a hollow shaft 99 journaled in bearings 100 (see Figures 4, 7 and 8) arranged on the bed 82. The hollow shaft 99 is provided with a gear wheel 101 in mesh with the gear wheel 84 and hence when the motor 90 is running a rotary motion is given to the hollow shaft 99. On one end of the drum 98 are arranged pins or lugs 102 adapted to be engaged by a cross pin 103 held on one end of the core 104 of a solenoid 105 attached to one of the bearings 100. A spring 106 is interposed between the end of the drum 98 and the pin 103 to normally hold the cross pin 103 out of engagement with the pins or lugs 102. The pin 103 extends through slots 107 formed in the hollow shaft 99 to rotate the core 104 on rotating the shaft 99. When the solenoid 105 is energized

then its core 104 is shifted against the tension of the spring 106 and the cross pin 103 is engaged with the pin 102 to rotate the drum 98 in the opposite direction and thus wind up the flexible connection 95 thereby imparting a downward swinging movement to the beam 65 owing to the flexible connection 95 being fixed at one end and passing over the guide pulley 97. When the solenoid 105 is de-energized then the spring 106 returns the core 104 to its normal position and hence the cross pin 103 moves out of engagement with the pins 102. When this takes place the beam 65 swings upward to its normal horizontal position by the action of the counterweights 73. It is understood that during the time the beam 65 is in lowermost inclined position the target 25 is returned from its left-hand position to the starting position, and the beam 65 then swings to horizontal position to lift the target 25 to uppermost position in the rear piece of scenery 31.

In order to impart a pitching motion to the target 25 the following arrangement is made: The rail 56 is guided at its ends in guideways 109 (see Figure 3) formed on the uprights 63 and 64, and the said ends are hung on two ropes, cables or other flexible connections 110, 111 extending upward and passing over guide pulleys 112, 113 journaled on the uprights 63 and 64. The flexible connections 110, 111 then extend downward and pass under guide pulleys 114, and 115 likewise journaled on the uprights 63 and 64, and then the ends of the flexible connections 110, 111 connect with a crank pin 116 of a crank disk 117 secured to the shaft 81 carrying the drum 80, as previously described. Thus when the motor 90 is running and the shaft 81 is rotating then the crank pin 116 actuates the flexible connections 110, 111 to alternately raise and lower the ends of the rail 56 thus imparting a pitching motion to the target 25 traveling on the said rail at the time. From the foregoing it will be seen that the target 25 while traveling from the right to the left is exposed to the missiles fired by the guns 22 but during this traveling movement the target 25 pitches thus rendering it more difficult for the missiles to pass through the openings 41 to actuate the corresponding minor target 45. The target 25 is provided on top with movable members 120 such as posts, towers, smokestacks and the like, connected at their lower ends by hinges 121 with the back wall 122 of a chamber 123 arranged on the upper rear portion of the plate 40. A spring arm 124 is attached to the back of each member 120 and is adapted to abut against the back wall 122 to limit the downward swinging movement of the corresponding member 120. Now in case such movable member 120 is struck by a missile or projectile fired by any one of the guns 22 then such member 120 swings rearwardly and downwardly into a collapsed position thereby heightening the effect of the naval action.

In order to control the electric connection the following arrangement is made: Main line wires 130 connected with a source of electrical energy (see Figure 2) are connected with a power switch 131 connected with motor circuit wires 132 connected with the motor 90, and the said circuit wires 132 contain a rheostat 133 for controlling the speed of the motor 90. The circuit wires 132 also contain a reversing switch 134 of usual construction to permit the attendant in charge to reverse the motor 90 for returning the target 25 to starting position, as previously explained. In order to control the sinking of the target, that is, the downward swinging movement of the beam 65, the following arrangement is made: The main line wires 130 are connected by circuit wires 140 with a switch 141 from which lead circuit wires 142, 143, of which the circuit wire 142 is connected with the solenoid 105. The other circuit wire 143 is connected with a stop 144 (see Figure 5) mounted on the base 51 and adapted to be engaged by a lug 145 arranged on the metallic back 146 of the minor target 45 at the time the latter swings from normal active position downward and rearward into turn down position, as shown in Figure 5. The metallic wall 146 of each minor target is insulated from the wall 146′ thereof and the metallic parts in contact with the latter wall, by means of wood side walls for the minor target, one of such side walls being marked 146″ in Fig. 5. On the back 146 is secured a contact 150 adapted to be engaged by an arm 151 carrying a weight 152 and forming part of a gate 153 connected by a hinge 154 (see Figures 4 and 5) with the lower end of the back 146 of the minor target 45. The gate 153 controls an outlet 155 at the rear end of the bottom 46 of the minor target 45, and the said gate 153 closes the outlet 155 at the time the minor target 45 swings into the inactive position shown in Figure 6, thus retaining the missile or projectile 24 in the said target.

It will be noticed that the missile or projectile 24 is in contact with the gate 153 and the metallic bottom 46 to establish electric connection between the contact 150 and the metallic bottom 46. The contact 150 is connected with a circuit wire 160 and a circuit wire 161 connects with the metallic bottom 46, and the said circuit wire 160 connects with the solenoid 105 and the circuit wire 161 connects with an electric light signal 162 disposed directly opposite the corresponding gun 22 and preferably arranged at the upper end of a wall 163 spaced from the counter 21 and forming part of the

main framework (see Figure 3). Each of the electric light signals 162 is provided with a numeral corresponding to that of the corresponding gun 22. The return circuit wire 165 of each electric light signal 162 connects with the solenoid circuit wire 142. The switch 141 is normally in open position, as shown in Figures 2 and 4, and is closed by the attendant only at the time the target 25 nears a scenery piece 32, and when the switch 141 is closed then the solenoid 105 is energized and consequently the drum 98 is coupled to the rotating shaft 99 to cause a downward swinging of the beam 65, as previously explained. When this takes place the target 25 sinks out of sight below the flexible member 31 and at the same time the electric light signal 162 corresponding to the minor target 45 containing the missile or projectile 24 is lit, thereby indicating the winner of the shooting contest.

In order to heighten the effect of sinking of the target 25 use is made of one or more red electric lamps 170 (see Figures 4 and 6) mounted in the chamber 123, previously mentioned. A diaphanous top plate 171 covers the chamber 123 and hence when the lamp 170 is lit a red glare is directed upward thus simulating the target as being on fire. The lamp 170 has one of its circuit wires 172 connected with the circuit wire 160, and the other circuit wire 173 of this lamp 170 is connected with the solenoid circuit wire 142. It is understood that by the arrangement described the lamp or lamps 170 are lit at the time the target begins to sink.

After the target 25 has been returned to starting position, the several minor targets 45 are swung by the attendant upward from inactive position into active position, and in doing so the weighted arm 151 swings the gate 153 into open position thus releasing the missile or projectile 24 and allowing the same to run out of the outlet 155 and to drop onto a return runway 180 forming part of the main framework and extending from the back wall 53 to the front wall 163 of the main framework, as plainly shown in Figure 3. The front end of the runway 180 connects with an opening 181 in the front wall 163, and the opening 181 connects with a chute 182 attached to the front of the wall 163 and normally closed by a hinged door 183 pressed on by a spring 184 to retain the missile or projectile in this chute until the door 183 is opened by the attendant. It is understood that the other missiles or projectiles fired rearwardly from the several guns eventually drop onto the runway 180 to accumulate in the chutes 182 and to be finally removed and returned to the magazines of the guns 22.

The guns 22 may of course be of any approved construction; are of course preferably of the magazine type; and each is dirigible as to direction by being suitably pivotally mounted on a vertical axis on counter 21 as well as preferably on a horizontal axis for elevation or aiming for range.

The operation is as follows:

In using the shooting gallery, a number of contestants corresponding to the number of guns 22 are seated on the seats 23 to conveniently manipulate the guns 22. After the contestants are seated the attendant in charge of the shooting gallery closes the switch 131 to start the motor 90 to actuate the drum 80 and then cause the flexible connection 60 to impart a traveling motion to the main target 25 from the right to the left whereby the target 25 gradually appears in view of the contestants as it passes from behind the piece of scenery 31. The target 25 besides traveling from the right to the left receives a pitching motion owing to the rocking of the rail 56 connected with the crank disk 117 rotating with the drum 80, as above explained. The contestants now manipulate their guns 22 with a view to pass a missile or projectile through the corresponding opening 41 into the corresponding minor target 45, and as soon as such missile passes into one of the minor targets 45 all of the said minor targets are swung downwardly and rearwardly into inactive position but the missile in one of the minor targets is retained owing to the gate 153 moving into closed position, as shown in Figure 6. The fact that one of the missiles has passed into a minor target 45 is not immediately announced and the contestants keep on firing at the main target 25 and any missiles that may pass through the openings 41 pass to the rear of the target against the back wall 53 without, however, affecting the minor targets 45. About the time the main target 25 reaches the piece of scenery 32 the attendant in charge closes the switch 141 whereby the circuit for the minor target 45 containing the missile or projectile 24 is closed and hence the corresponding electric light signal 162 is lit thereby announcing the successful contestant. Further firing of the guns now ceases.

It will also be noticed that when the switch 141 is closed the circuit for the solenoid 105 is closed and hence the drum 98 is actuated to wind up the flexible connection 95 and thereby impart a downward swinging movement to the beam 65 to lower the target 25 below the flexible member 31 thus indicating the sinking of the target. When this takes place the circuit for the red lamps 170 are closed thus causing a red glare to produce the effect of the sinking target being on fire. The attendant in charge now manipulates the reversing switch to reverse the motor 90 and thus cause the target 25

to return at a high rate of speed quickly while in lowermost position until the target reaches the right-hand side of the shooting gallery, and then the switch 141 is opened by the attendant to allow the beam 65 to swing back to uppermost position by the action of the weights 73. The target 25 has now again reached its starting position behind the piece of scenery 31. The attendant now opens the main switch 131 to stop the motor 90. The attendant next swings the minor targets upward into active position and the attendant also returns to vertical position any one of the members 120 that may have been hit and collapsed by one of the missiles fired by the guns 22 during the naval action and while the target 25 travels from the right to the left, as above explained.

From the foregoing it will be seen that a number of contestants for marksmanship actuate the several guns during the time the target 25 travels from the right to the left and as soon as one of the missiles passes into one of the minor targets 45 all of the minor targets are moved into inactive position and hence are not affected by the further firing of the guns 22, but the winner is not immediately announced to give the contestants ample time to fire a large number of shots prior to the target being moved out of sight on the attendant correspondingly closing the switch 141.

It will also be noticed than any one of the contestants may send a missile or projectile through an opening 41 other than the one corresponding to his gun but this contestant is not the winner but the one in whose minor target the missile was thrown by the other contestant. In case two missiles should enter simultaneously different openings or port holes 41 then the two corresponding contestants divide the prize or each receives a prize. In case none of the missiles fired during the action passes into one of the minor targets 45 then the several contestants receive another chance free of charge by the attendant correspondingly manipulating the switches to start the action over again.

Although the main target 25 is preferably a movable one in the form of a marine vessel, I do not limit myself to such a target as the same may be of different shape and may be stationary instead of being movable.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a shooting gallery, a distant target, a rocking support for the target to slide on, propelling means for the said target to slide it forward or backward on the said support, and sinking means supporting the said rocking support and the said propelling means.

2. In a shooting gallery, a distant target, a propelling means for the said target, sinking means supporting the said target and the propelling means, manually controlled means controlling the said propelling means, and manually controlled means controlling the said sinking means independent of the controlling means for the propelling means.

3. In a shooting gallery, a main target having a front side provided with a longitudinal row of openings, minor targets in the rear of the said front side and of box-like construction, each minor target being pivoted at its lower end on the main target, each minor target having an opening at the front adapted to register with a corresponding opening in the front side of the main target, and each minor target having an outlet for a missile passing through the said registering openings into the minor target.

4. In a shooting gallery, a main target having a front side provided with a longitudinal row of openings, minor targets in the rear of the said front side and of box-like construction, each minor target being pivoted at its lower end on the main target, each minor target having an opening at the front adapted to register with a corresponding opening in the front side of the main target, each minor target having an outlet for a missile passing through the said registering openings into the minor target, and a gate controlling the said outlet to hold the missile in the minor target while the latter is down and to open the outlet on the return of the minor target to upright active position.

5. In a shooting gallery, a main target having an opening, a minor target pivoted on the said main target and of box-like construction, the minor target having an inlet opening adapted to register with the said opening of the main target at the time the minor target is up, and the said minor target having an outlet at its pivotal end for the missile to run out of the minor target.

6. In a shooting gallery, a miniature representation of a marine vessel forming a main target having a row of portholes and a corresponding number of minor targets in register with the portholes, means imparting traveling motion to the said target, and a plurality of guns corresponding to the number of portholes and mounted on the front of the shooting gallery and adapted to shoot missiles onto the said target.

7. In a shooting gallery, a miniature representation of a marine vessel forming a main target having a row of portholes and a corresponding number of minor targets in register with the portholes, means imparting a traveling motion to the said target, means to sink the said target and return it to starting position, and means to

illuminate the target at the time of sinking to produce the effect of the marine vessel being on fire.

8. In a shooting gallery, a miniature representation of a marine vessel forming a main target having a row of portholes and a corresponding number of minor targets in register with the portholes, means imparting a traveling motion to the said target, a plurality of guns corresponding to the number of portholes and mounted on the front of the shooting gallery and adapted to shoot missiles onto the said target, and indicating means controlled by the said minor targets to indicate the minor target struck by a missile.

9. In a shooting gallery, a major target including a plurality of minor targets any one of which is movable relative to the main target when struck by a missile, an electric signal appropriate to each minor target, a normally open electric circuit adapted to actuate such signal when closed, means for closing the appropriate circuit carried by each minor target and actuable to close the circuit last mentioned when such minor target is moved relative to the main target, and means for rendering all other minor targets inoperative when one is moved relative to the main target.

10. In a shooting gallery, a miniature representation of a familiar structure forming a main target having a row of openings characteristic of the actual structure shown in miniature and also having a corresponding number of minor targets in register with said openings, and a plurality of guns corresponding to the number of openings and mounted on the front of the shooting gallery and adapted to shoot missiles onto the said target.

11. In a shooting gallery, a miniature representation of a marine vessel forming a main target having a row of port-holes and a corresponding number of minor targets in register with the port-holes, means for imparting a motion to the said target characteristic of a travel thereof, and a plurality of guns corresponding to the number of port-holes and mounted on the front of the shooting gallery and adapted to shoot missiles onto the said target.

FRANK REGANELD CHESTER.