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TARGET MOVING AND CONTROL MECHANISM

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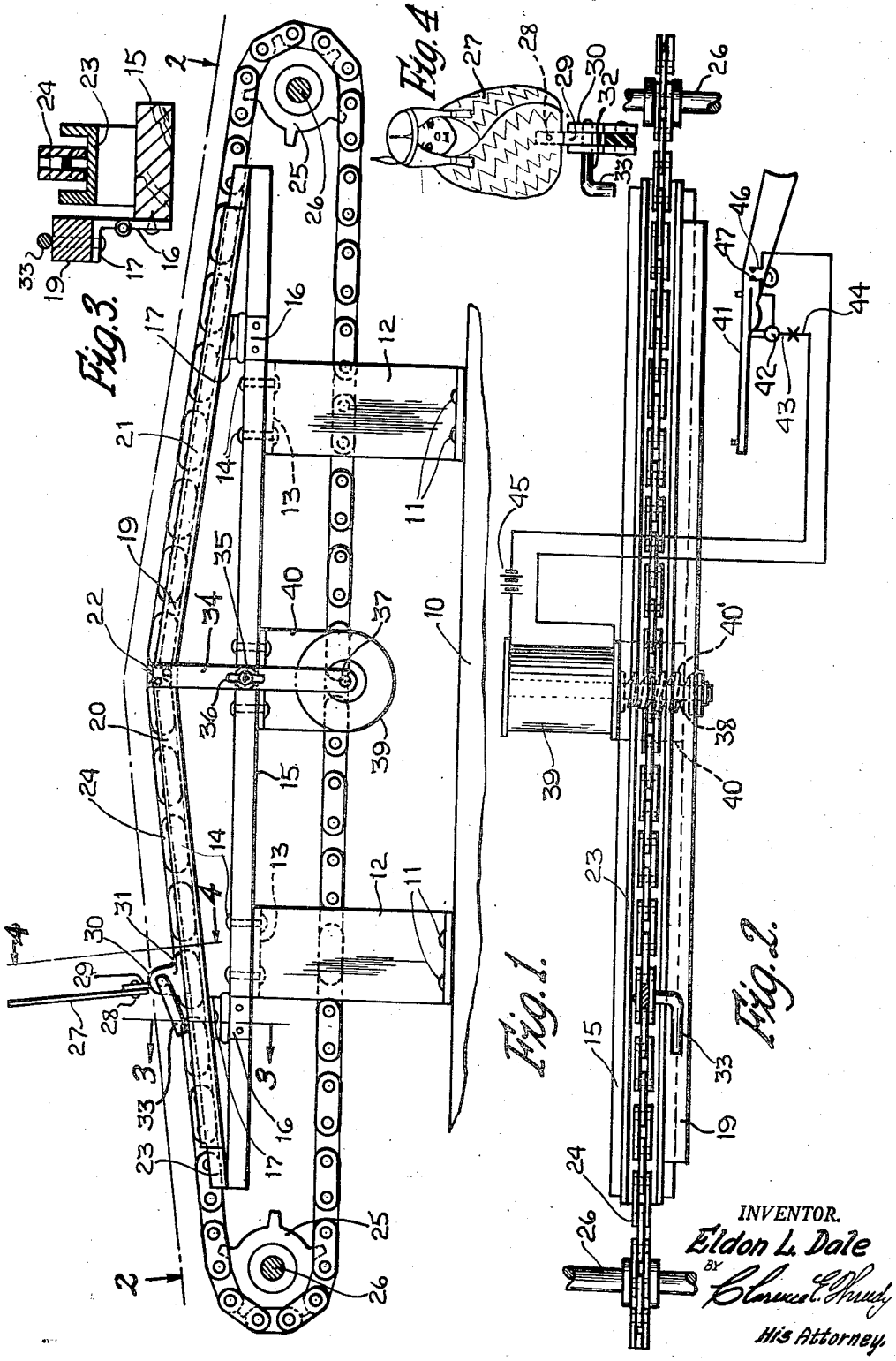


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4

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TARGET MOVING AND CONTROL MECHANISM

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2 Claims. (Cl. 273—101.2)

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This invention relates to certain new useful improvements in Target Moving and Control Mechanism and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

More specifically the invention relates to a target moving and controlling mechanism especially adapted and designed for use in practice shooting apparatuses such as is disclosed in my pending application, Serial No. 697,129, filed September 24, 1946 and now Patent No. 2,510,382. The present invention has as an object the provision for moving a target in a manner such as simulates the movement of a target over a hill or the like. Ancillary to this object is also the object of providing a simplified and improved mechanism for releasing the target when a simulated hit is made thereon from an upright position to a fallen position at any point within a range between the opposite ends of the target moving means.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a side elevational view of the invention;

Fig. 2 is a top plan view of the same taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a sectional detail view taken substantially on line 3—3 of Fig. 1;

Fig. 4 is an elevational view taken substantially on line 4—4 of Fig. 1.

The several objects of my invention may be accomplished by the preferred form of construction shown in the accompanying drawings, and in which 10 indicates a wall portion of a cabinet within which my invention is adapted to be arranged. Secured to this wall 10 as at 11 are mounting brackets 12 spaced from each other and providing parallel horizontally extending flanges 13 secured as at 14 to a supporting bar 15.

Connected to this supporting bar 15 adjacent opposite end portions thereof are hinges 16, the upper hinge leaves 17 being secured to a retaining bar 19. This retainer bar 19 comprises two sections 20 and 21 preferably joined together at their confronting end portions 22 and tapering downwardly in opposite directions. Adjacent this retainer bar 19 and in parallel relation with

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respect thereto is a channel-shaped track 23 supported by the supporting bar 15 and tapering from an intermediate portion in opposite directions to provide a hill over which a sprocket chain 24 is adapted to travel, the sprocket chain being carried by the channel track 23 in its movement over the hill thus provided by the track 23.

This sprocket chain 24 is of a continuous construction and passes over sprocket gears 25 fixed to shafts 26, either one of which shafts may be driven by a motor (not shown). To this chain 24 are pivotally connected targets 27 and any number of targets may be carried by the sprocket chain 24. To this target 27 is connected as at 28 a depending lug 29. This lug 29 is positioned between extensions 30 of adjacent links 31 of the sprocket chain 24. The lug 29 is pivotally connected to these extensions 30 by a pin 32 fixed to the lug 29 for movement therewith. This pin 32 has a rearwardly extending tail portion 33 which, when the target 27 is traveling over the hill provided by the channel track 23, rides, as shown in Fig. 1, upon the retaining bar 19, thus keeping the target in a vertical position.

Secured to the intermediate point or point of junction between the sections 20 and 21 of the retainer bar 19 is a vertical plate 34 having a floating connection with a pin 35 extending laterally from the supporting bar 15. This pin 35 protrudes horizontally through a slot 36 formed in the plate 34 intermediate its ends. Thus it is readily apparent that under such a construction the plate 34 is permitted to be moved vertically through the slot 36 and slightly horizontal on the pin 35. The lower end portion of this plate 34 has a slot and pin connection 37 with the end portion of the plunger 38 of the solenoid 39, which solenoid is supported by a bracket 40 carried beneath the supporting bar 15. From the foregoing description, the slot and pin connection 37 and the slot and pin connection 35 and 36 will permit the plate 34 to be moved downwardly and pivoted slightly horizontally from the supporting bar 15, thus pivoting the bar 19 about the hinges 16 when the plunger 36 is drawn inwardly with respect to the coil of the solenoid 39 against the action of the plunger projecting spring 40'. When this plate 34 by such action of the solenoid 39 is thus moved, the retainer bar 19 is pivoted out of engagement with the tail 33 of the target 27 a sufficient distance to permit the target 27 to pivot by gravity to a horizontal position, thus simulating a hit.

The coil of the solenoid 39 may be energized by suitable means. An example of such means

is diagrammatically illustrated in Fig. 2. This means includes a rifle 41 mounted for oscillation at a point 42 and having a contact finger 43 which is intended to be brought into contact with a finger 44 as the rifle is accurately aimed at the target 27. This finger 44 is connected to one side of a power source 45, the other side of the power source being connected to one side of the solenoid 39.

The other side of the coil of the solenoid 39 is connected to one side of a trigger switch 46 arranged in the rifle 41. The other side 47 of the trigger switch is connected to the contact finger 43.

From the foregoing description taken and read in connection with the drawings, it will be apparent that the upper run of the sprocket chain 24 moves through the channel guide 23 and, in so moving, moves the target through a plane whereby the movement of the target will appear as being moved over a hill. Whenever the contacts 43 and 44 are properly synchronized, the retaining bar 19 will be moved from engagement with the tail 33, permitting the target to pivot by gravity from an upright position, thus to simulate that the target has been struck.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A device of the class described comprising a mounting plate, a channel-shaped guide carried by the plate and having a raised medial point spaced above the plate and end portions extending downwardly from said medial point into contact with the opposite ends of said plate to simulate a hill; sprocket wheels at opposite ends of the plate, a circular chain having driving engagement with said wheels and having an upper run traveling through said channel-shaped guide, a target pivotally carried by said chain for movement over said hill, a retainer bar hingedly connected to said plate adjacent one side of and extending parallel with respect to said guide, said target providing a depending lug engageable with one side of said retainer bar to maintain said target in a vertical position as said target moves over said hill, and means for pivoting said retainer bar out of engagement with said lug to permit said target to pivot by gravity from its vertical position to a substantially horizontal position to simulate a hit scored thereon.

2. A device of the class described comprising a mounting plate, a channel-shaped guide carried by the plate and having a raised medial point spaced above the plate and end portions extending downwardly from said medial point into contact with the opposite ends of said plate to simulate a hill; sprocket wheels at opposite ends of the plate, a circular chain having driving engagement with said wheels and having an upper run traveling through said channel-shaped guide, a target pivotally carried by said chain for movement over said hill, a retainer bar hingedly connected to said plate adjacent one side of and extending parallel with respect to said guide, said target providing a depending lug engageable with one side of said retainer bar to maintain said target in a vertical position as said target moves over said hill, and means for pivoting said retainer bar out of engagement with said lug to permit said target to pivot by gravity from its vertical position to a substantially horizontal position to simulate a hit scored thereon, said last-named means including an electromagnet having operable connection to said retainer bar to pivot the same away from said lug carried by said target.

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