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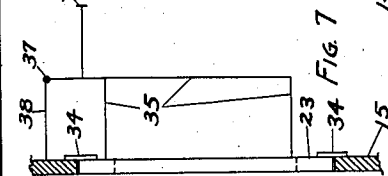
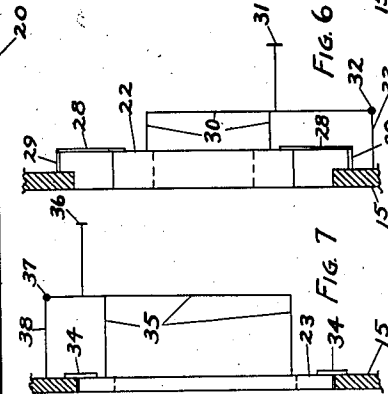
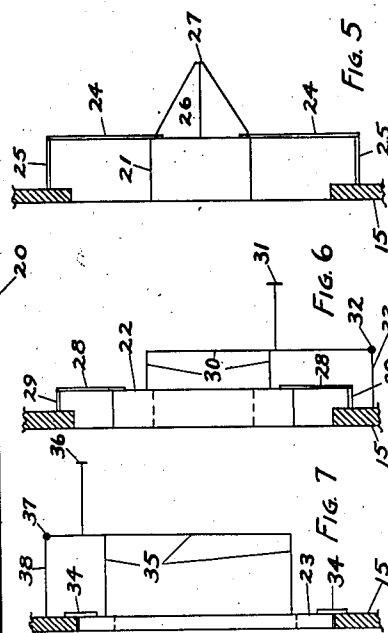
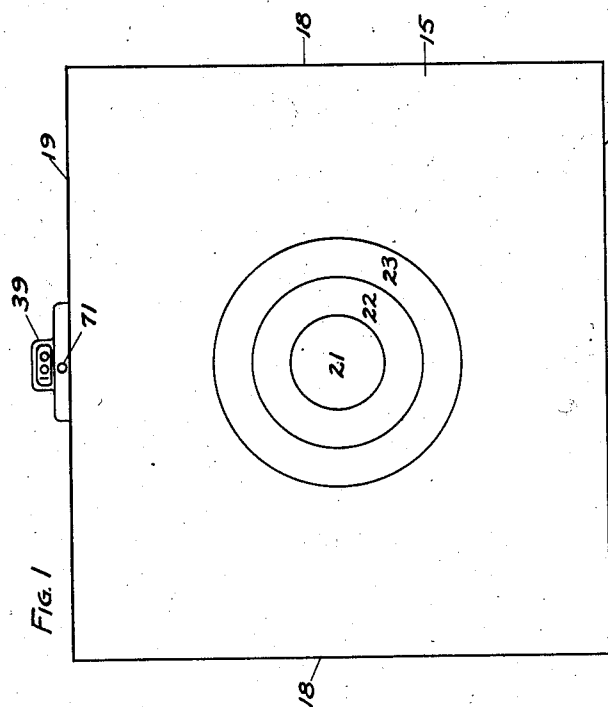
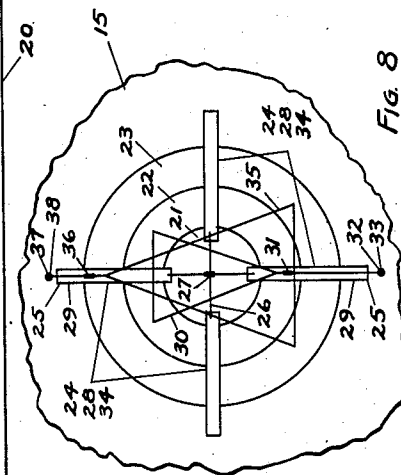
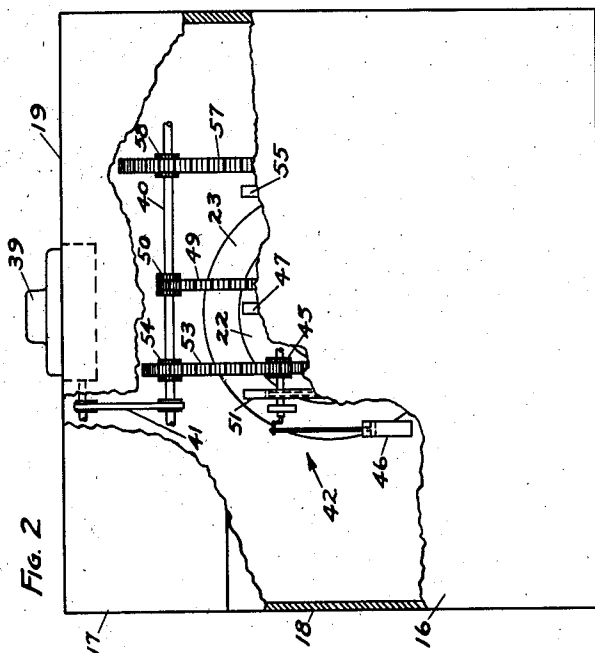
I. J. HAWKINS

2,148,749

BULL'S EYE TARGET

Filed Jan. 27, 1937

2 Sheets-Sheet 1



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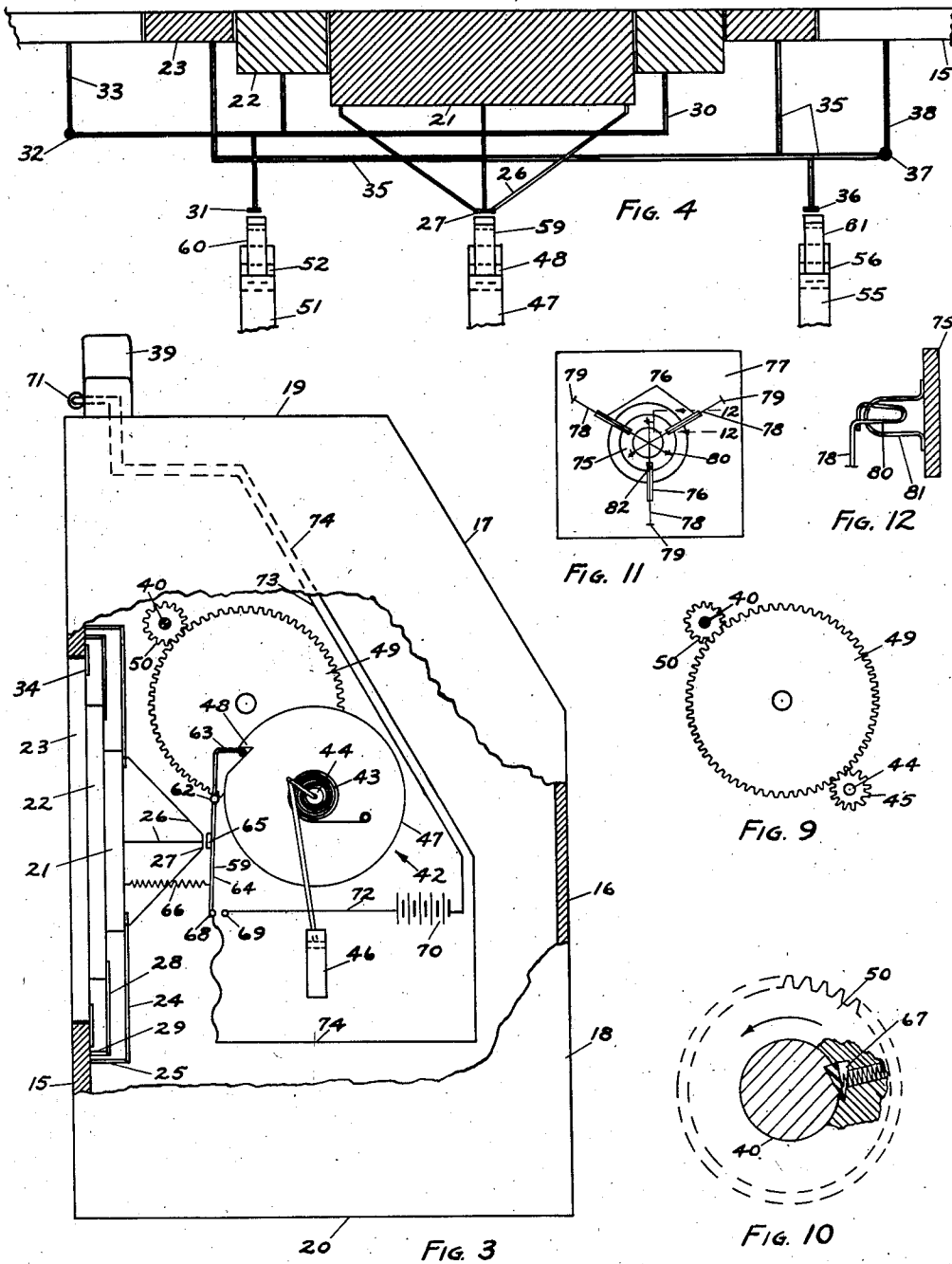
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BULL'S EYE TARGET

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,148,749

BULL'S EYE TARGET

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Application January 27, 1937, Serial No. 122,601

2 Claims. (Cl. 273—102.2)

This invention relates to a bull's eye target device, and the general object of the invention is to provide a novel and improved game of skill.

More explicitly, it is the object of the invention to provide a bull's eye target game or device which will include mechanism for automatically denoting the shooting score of a marksman, and in which game or device will be incorporated various improved features and characteristics of construction novel both as individual entities of the game or device and in combination with each other.

With the above objects in view, as well as others which will appear as the specification proceeds, the invention comprises the construction, arrangement and combination of parts as now to be fully described and as hereinafter to be specifically claimed, it being understood that the disclosure herein is merely illustrative and intended in no way in a limiting sense, changes in details of construction and arrangement of parts being permissible so long as within the spirit of the invention and the scope of the claims which follow.

In the accompanying drawings forming a part of this specification.

Fig. 1 is a front elevational view of a bull's eye target device in which the features of the invention are incorporated;

Fig. 2 is a rear elevational view of said device, partially in section and partially broken away;

Fig. 3 is an enlarged side or end elevational view of the device, partially in section and partially broken away;

Fig. 4 is an enlarged horizontal sectional view detailing features of the device;

Fig. 5 is a view detailing the relation of the bull's eye proper to other elements of the device;

Fig. 6 is a view detailing the relation of an annular target member immediately surrounding the bull's eye proper to other elements of the device;

Fig. 7 is a view detailing the relation of a second annular target member immediately surrounding the annular target member as in Fig. 6 to other elements of the device;

Fig. 8 is a view disclosing how the parts in Figs. 5, 6 and 7 appear from the rear when assembled;

Fig. 9 is a detail view of gear mechanism of the device;

Fig. 10 is a view detailing any one of several slip connections for a common drive shaft of the device;

Fig. 11 is a rear elevational view of an annular

target member and a modified mechanism to be actuated by said member; and

Fig. 12 is a detail sectional view taken on line 12—12 in Fig. 11.

With respect to the drawings and the numerals of reference thereon, a casing housing elements of the device consists of a front wall 15, a rear wall including a vertical portion 16 and an oblique portion 17, side or end walls 18, a top wall 19, and a bottom wall 20.

The front wall 15 is cut away to receive target members including a bull's eye target proper 21, an annular target member 22 immediately surrounding said bull's eye target proper, and a second annular target member 23 immediately surrounding the annular target member 22. Each of the target members 21, 22 and 23 is an independent entity adapted to be moved with respect to the other target members and with respect to the front wall 15 when struck on the forward surface thereof, as by a bullet, missile, arrow, or the like.

The bull's eye target 21 includes a forward surface normally alining with the forward surface of the front wall 15, and said bull's eye target includes a rearward surface spaced somewhat rearwardly of said front wall. The bull's eye target 21 is held in its normal position by a plurality of elastic straps 24, or equivalent, secured to the rearward surface of said bull's eye target and to supports 25 mounted upon and extending rearwardly from the front wall 15. The rearward surface of the bull's eye target conveniently supports a rearwardly extending frame 26 including a button or working surface 27 for a purpose to be explained.

The annular target member 22 includes a forward surface normally alining with the forward surface of the front wall 15, and said target member 22 includes a rearward surface spaced rearwardly of said front wall a distance less than the rearward surface of the bull's eye target 21 is spaced from the front wall. The annular target member 22 is held in its normal position by a plurality of elastic straps 28, or equivalent, secured to the rearward surface of said target member 22 and to supports 29 mounted upon and extending rearwardly from the front wall 15. The rearward surface of the target member 22 conveniently supports a rearwardly extending frame 30 including a button or working surface 31, and said frame 30 is pivoted as at 32 upon a bracket 33 carried by the front wall 15.

The annular target member 23 includes a forward surface normally alining with the forward

surface of the front wall 15 and a rearward surface alining with the rearward surface of said front wall. Said annular target member 23 is held in its normal position by a plurality of elastic straps 34, or equivalent, secured to the rearward surface of said target member 23 and the front wall 15, respectively. The rearward surface of the target member 23 conveniently supports a rearwardly extending frame 35 including a button or working surface 36, and said frame 35 is pivoted as at 37 upon a bracket 38 carried by the front wall 15.

The idea in playing the game, or operating the device, is to shoot at and strike the target member 21, or come as close to this target member as possible, and the device includes mechanism for automatically posting the score, and the accumulated score, of a marksman, whether he hits the bull's eye target 21 itself or either of the target members 22 or 23. The device also includes an arrangement for lighting a lamp when the bull's eye is struck, and may include means for lighting additional lamps when either of the target members 22 or 23 is struck.

A counting and posting member 39 of ordinary or preferred construction is mounted upon the top wall 19 and is adapted to be actuated by a horizontal driven shaft 40 suitably mounted in the casing of the device, there being a belt and pulley connection 41 between the driven shaft 40 and the counting and posting member 39.

The driven shaft 40 is adapted to be independently and cumulatively driven by each of clock mechanisms 42, there being three clock mechanisms in the present instance. Each clock mechanism includes in common an actuating spring 43, a supporting shaft 44 conveniently mounted in the casing, a pinion 45 upon the supporting shaft, and an ordinary dash pot arrangement 46 for retarding the actuation of the spring 43 and the rotation of the shaft 44.

There is a clock mechanism 42 corresponding to the button or working surface 27 and including, in addition to the elements common to all of the clock mechanisms, a cam 47 with detent 48 and a gear 49, suitably mounted in the casing, with which a pinion 45 of the corresponding clock mechanism meshes. The gear 49 meshes with a pinion 50 upon the driven shaft 40.

There is a clock mechanism 42 corresponding to the button or working surface 31 and including, in addition to the elements common to all of the clock mechanisms, a cam 51 with detent 52 and a gear 53, suitably mounted in the casing, with which a pinion 45 of the corresponding clock mechanism meshes. The gear 53 meshes with a pinion 54 upon the driven shaft 40.

There is a clock mechanism 42 corresponding to the button or working surface 36 and including, in addition to the elements common to all of the clock mechanisms, a cam 55 with detent 56 and a gear 57, suitably mounted in the casing, with which a pinion 45 of the corresponding clock mechanism meshes. The gear 57 meshes with a pinion 58 upon the driven shaft 40.

Each of the cams 47, 51 and 55 is normally held in stationary position by a pivoted arm, denoted 59, 60 and 61, respectively. These pivoted arms are, generally, similar and a description of the arm 59 as clearly disclosed in Fig. 3 and its method of functioning will suffice to explain the manner of operating of each of the pivoted arms 59, 60 and 61.

Said arm 59 is pivotally mounted at 62 upon the casing and includes a length 63 thereof at

one side of the axis 62 engaged with the detent 48. The length 64 at the opposite side of said axis includes a boss 65 adapted to be engaged by the button or working surface 27. A coil spring 66 attached to the length 64 of the arm 59 and to the casing is adapted to normally retain the length 63 engaged with the detent 48 and the button or working surface 27 out of engagement with the boss 65, as the parts are shown in Fig. 3.

When the bull's eye target 21 is struck upon its front surface, the button or working surface 27 is pushed against the boss 65 and the pivoted arm 59 is actuated to remove the element 63 thereof from the detent 48 against the action of the coil spring 66. The cam 47 of the clock mechanism makes one revolution under the influence of the clock spring while the element 63 rides upon the perimeter of the cam. The elastic straps 24 draw the bull's eye target 21 forwardly to its normal position, away from the boss 65, immediately after a blow is struck. Upon the completion of a single revolution of the cam 47, the element 63 engages the detent 48.

Similarly, when the target member 22 is struck, the button 31 actuates the arm 60 to release the detent 52, and the cam 51 makes one revolution and stops, the elastic straps 28 returning said target member 22 to normal position immediately after a blow is struck.

Also, when the target member 23 is struck, the button 36 actuates the arm 61 to release the detent 56, and the cam 55 makes one revolution and stops, the elastic straps 34 returning said target member 23 to normal position immediately after a blow is struck.

The relation of the gear 49 to its pinion 45 is such that a single rotation of the cam 47 will propel the driven shaft 40 the requisite distance to obtain the desired advancement of the counting and posting member 39. The relation of the gear 53 to its pinion 45 is such that a single rotation of the cam 51 will propel said driven shaft 40 a smaller amount to obtain a smaller advancement at the counting and posting member. The relation of the gear 57 to its pinion 45 is such that a single rotation of the cam 55 will propel the driven shaft 40 a still smaller amount to obtain a still smaller advancement at the counting and posting member. That is to say, hitting the bull's eye target 21 could be made to count 100 at the member 39, hitting the target member 22 could count 50, and hitting the target member 23 could count 25, simply by way of example. The driven shaft 40 and the belt and pulley connection 41 will desirably cause a cumulative score to be posted at the member 39 by repeated advancements of said driven shaft 40. The member 39 will desirably include an ordinary resetting means (not shown).

In order that each clock mechanism can independently advance the driven shaft 40, a slip arrangement, denoted generally at 67 in Fig. 10, between each pinion 50, 54 and 58 and said driven shaft can be employed. In said Fig. 10, rotation of the pinion 50 in the direction of the arrow disclosed will advance the driven shaft 40, and, at the same time, said driven shaft can be rotated in the direction of said arrow by one or the other pinions 54 and 58 while the pinion 50 remains stationary and the shaft rotates in the pinion. The pinions 54 and 58 are secured to the driven shaft 40 in the same manner as is the pinion 50.

The length 64 of the pivoted arm 59 carries a movable contact element 68 which engages a

fixed contact element 69 when the element 63 is riding upon the perimeter of the cam 47. The contact elements 68 and 69 are included in an electrical circuit having a battery 70 and a lamp 71. The lamp may desirably be arranged adjacent to the member 39, or elsewhere. A lead wire 72 connects the fixed contact element 69 with the battery, a lead wire 73 connects the battery with the lamp, and a lead wire 74 extends from the lamp to the movable contact element 68. It will be evident that striking the bull's eye target will cause the lamp 71 to be lighted and that said lamp will remain lighted during each revolution of the cam 47. A similar arrangement could be employed to light lamps when the target members 22 and 23 are struck.

In Figs. 11 and 12 I have disclosed an annular target member 75, generally like the annular target member 22, and a modified mechanism to be actuated by said target member 75. The target member 75 is normally positioned so that its forward surface is aligned with the forward surface of the front wall, denoted 77, of the casing, as by elastic straps 76, or equivalent. A frame, equivalent to the frame 30, consists of three separate wires 78 each pivoted upon the rearward surface of the front wall 77, as at 79. The inner end portions of the wires 78 overlap at the center of the target member and the inner end of each wire 78 is looped, as at 80 in Fig. 12, and fitted into a wicket 81 upon said front wall. The outermost wire 78 integrally supports a button or working surface 82, equivalent to the working surface 31. Upon the forward surface of the target member 75 being struck, one or more of the wires 78 is swung rearwardly on one or more of the pivots 79 by engagement of the outer portion of each wicket 81 with its corresponding wire 78. Any portion of the target member which has tendency to remain stationary when another portion is struck and pushed rearwardly will have no tendency toward retarding movement of the wire 78 at or adjacent to a struck portion of the target member, or of any of the wires, for the reason that each wire 78 is free to move away from the front wall 77 a distance equal to the height of the loop 80, as will be understood. When a portion of the target member at or adjacent to the pivot 79 for the innermost wire 78 is struck, all of the wires will be pushed rearwardly to actuate the button or working surface 82. When a portion of said target member at or adjacent to the pivot for the middle wire 78 is struck, said middle wire and the outermost wire will be pushed rearwardly to actuate said button or working surface 82. When a portion of the target member at or adjacent to the pivot for the outermost wire 78 is struck, said outermost wire only will be pushed rearwardly to actuate the button or working surface 82. It will be seen that the arrangement as described makes provision for forward and rearward movement of the target member in a straight line and without

binding, the wicket and loop arrangement caring for the slight endwise movement of each wire relative to the target member when the wires are caused to oscillate. It will be understood that an arrangement as in Figs. 11 and 12 could also be substituted for the frame 35 upon the target member 23.

What is claimed is:

1. A device of the character described, comprising a target member adapted to be actuated by being struck, a posting and scoring member, a spring urged rotatable member, a driving connection between said rotatable member and said posting and scoring member, a pivoted arm normally retaining said rotatable member in stationary position, actuation of said target member by being struck causing said pivoted arm to release said rotatable member whereby the spring urged rotatable member can actuate the posting and scoring member, a detent upon the rotatable member, means for causing the pivoted arm to arrest the actuation of the rotatable member by engagement with the detent at the conclusion of revolution of said rotatable member to a predetermined extent, a lamp, an electrical circuit for said lamp, and a switch for controlling said circuit and including said pivoted arm as a part thereof, said switch being adapted normally to be in the open position of said electrical circuit but to be in the closed position of said circuit when said rotatable member is released by said pivoted arm.

2. A device of the character described, comprising a target adapted to be actuated by being struck, a target member adjacent said target adapted to be actuated by being struck, a posting and scoring member, a plurality of spring urged rotatable members, a driving connection between each rotatable member and said posting and scoring member, a pivoted arm normally retaining each rotatable member in stationary position, there being a pivoted arm and a rotatable member corresponding to each of said target and said target member, respectively, actuation of said target by being struck causing the corresponding pivoted arm to release the corresponding rotatable member and actuation of said target member by being struck causing the corresponding pivoted arm to release the corresponding rotatable member whereby, in the instance of either of said rotatable members, the spring urging the rotatable member can actuate the posting and scoring member, a detent upon each rotatable member, means for causing each pivoted arm to arrest the action of the corresponding rotatable member by engagement with its detent at the conclusion of revolution of the rotatable member to a predetermined extent, and means whereby each spring urged rotatable member can actuate the posting and scoring member independently of the other spring urged rotatable member.

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