

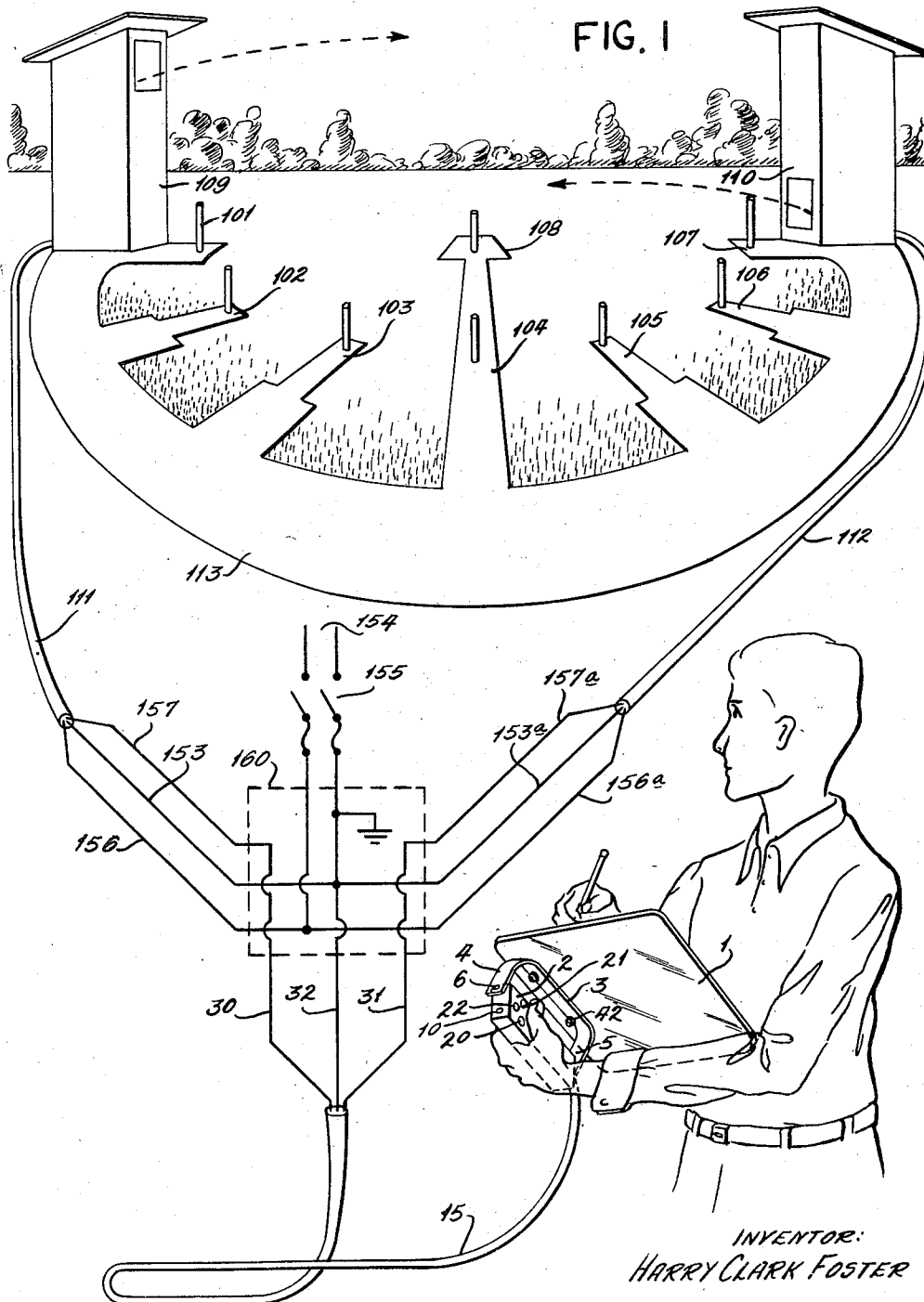
Oct. 14, 1958

H. C. FOSTER
GAME CONTROL DEVICE

2,855,916

Filed July 30, 1956

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 2

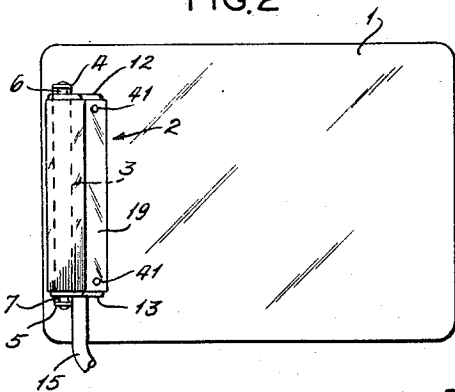


FIG. 3

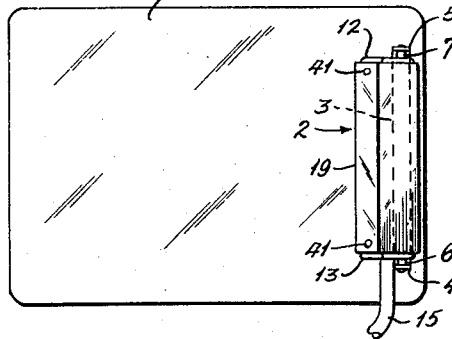


FIG. 4

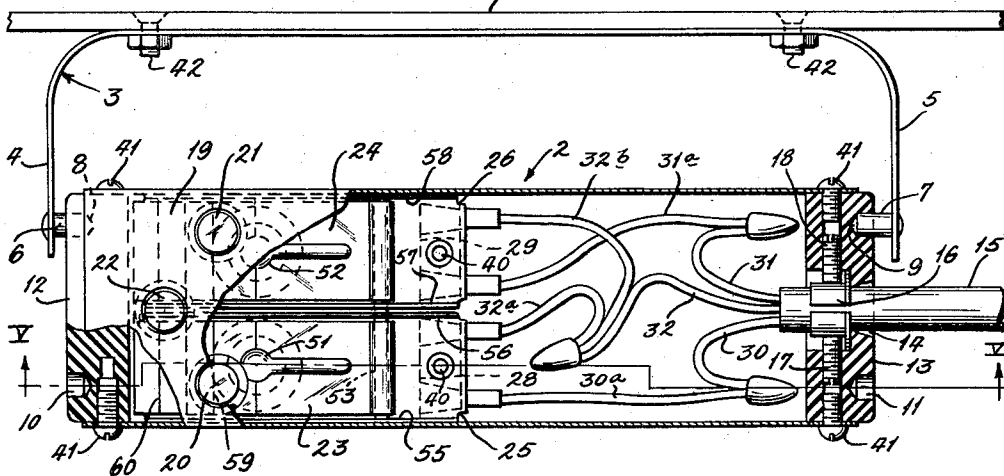
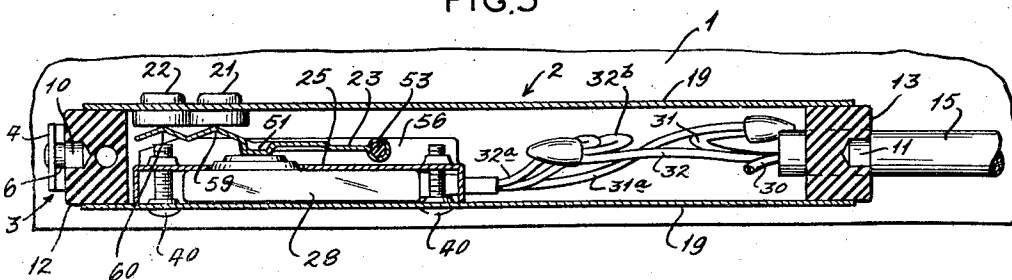


FIG. 5



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2,855,916

GAME CONTROL DEVICE

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Application July 30, 1956, Serial No. 600,890

4 Claims. (Cl. 124—32)

This invention relates to trap shooting apparatus and more particularly to apparatus for use in the operation and scoring of the game known as "skeet" shooting.

In this type of shooting two target traps are used to throw the disk targets known as clay pigeons. These traps are mounted in suitable houses on a skeet field at points spaced at a specified distance from one another. One of the traps is located in what is termed "the high house" and the other trap is located in what is called "the low house." As these terms indicate, the trap in the high house is mounted to eject the targets at a specified elevation above the point of ejection of the other trap mounted in the low house near the ground also ejecting at a specified elevation for the purpose of ejecting the targets from these houses with the corresponding difference in elevation. During the course of the shooting contest each contestant takes positions successively at each of a series of eight shooting stations which are laid off in and around an arc joining the two trap houses. As the shooter at the respective positions of these stations calls for targets, the targets are released by an attendant in charge from either one or the other of the trap houses or from both of them simultaneously upon call or sign given the attendant by the contestant. Since according to the rules of the game laid down by the National Skeet Shooting Association the trap must be released without fail immediately after but never before the signal given by the contestant, the attendant in charge, heretofore located at a fixed control table spaced more than seventy-five feet from certain of the shooting stations, must devote himself entirely to catching such signals. Elimination of errors in catching these signals and in releasing the traps has been greatly desired. In an attempt to minimize misunderstanding of the signals, judging of the results of the shot has been heretofore ordinarily done by another attendant at additional expense.

One of the objects of this invention is to provide new and improved means for electrically controlling the target releasing traps in the game of skeet shooting.

Another object is to provide controlling means for releasing the targets from a single mobile operating station with improved liaison between the contestants and the attendant in charge.

Another object is to provide a skeet control board wherefrom a single attendant acting as controlling operator of the game can both control the operation of the traps and judge as well as keep score with accuracy, convenience and efficiency.

Other objects and advantages will be apparent from the following description of a preferred embodiment and the accompanying drawing thereof in which:

Figure 1 is a somewhat diagrammatic view showing a skeet field layout and also the control apparatus of this invention together with its controlling connections with the skeet field;

Figure 2 is an elevational view of this invention from

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the back of the score board arranged for right handed operation;

Figure 3 is an elevational view of this invention from the back of the score board arranged for left handed operation;

Figure 4 is a view of the portable electric release which is an essential part of the control board shown partly in cross section and mounted on the score board; and

Figure 5 is a cross sectional view taken on line 5—5 of Figure 4.

In accordance with this invention there is provided in combination a score card support together with a target releasing control device mounted thereon in such a manner as to permit both the manual performance of the score keeping function as well as the complementary trap operating function by the controller without interference of one function with the other. The device is adapted for either right handed or left handed operation with a minimum of adjustment and rearrangement. This is accomplished by associating a portable hand grip type of electric release with a portable score card support through the intermediary of a reversible connecting arrangement.

The device will be better understood with reference to Figure 1, showing a typical skeet field and a wiring diagram therefor, and with further reference to the type of target throwing trap disclosed in my co-pending patent application Serial No. 437,191, filed June 16, 1954, for which the control wiring diagram shown in Figure 1 is suitable.

The preferred embodiment of the device of this invention comprises the score keeping board 1, the portable manually operable switch and handle unit 2, and a special type of connection 3 between the support and the switch. The unit 2 and the lateral connection 3 are adapted when unit 2 is grasped in one of the hands of the attendant to provide the chief support for board 1 leaving the other hand of the attendant free for keeping score.

The arrangement and design is such that the thumb of the hand grasping switch unit 2 is free to actuate any one of the release buttons 20, 21 and 22 on unit 2 for the purpose of energizing the release devices of the traps located in the trap houses 109 and 110 at the signal of the shooter who may be located at any one of the shooting stations 101, 102, 103, 104, 105, 106, 107 and 108. Although three closely positioned buttons are shown as the switch actuators in this embodiment, it will be understood that two buttons in contiguous side-by-side relationship so as to be operable either separately or in unison may also be used. Furthermore, a three-operating position toggle actuator with a fourth inoperative position may be substituted as an equivalent. Whichever form of switch actuator is employed, it is desired that each be adapted for thumb operation.

The score card supporting board 1 is of a desired size, such as 9 inches by 12 inches, suitable for both the keeping of score and for easy handling by the attendant in control of the game. A board of this size is adapted to be supported by one hand aided by its forearm acting as a partial rest along the back of the board as shown in Figure 1. Adjacent a lateral edge of board 1 there is provided a connecting member 3 adapted for reversible engagement with the special handle and switch unit 2.

Reversible engagement permits the device of this invention to be suitable for use by either a right handed or a left handed attendant. This will be more readily understood by reference to Figures 2 and 3 with the details shown in Figures 4 and 5 in mind.

Connecting member 3 takes the form of a U-shaped

bracket or clip attached to board 1 by means of any suitable fasteners such as 42. The ends of bracket 3 take the form of resilient arms 4 and 5 carrying respectively trunnions 6 and 7. These trunnions are adapted to fit into a pair of the four mounting sockets 8, 9, 10 and 11 formed in the end plugs 12 and 13 of the readily grasped housing 19 of the unit 2.

The shape of this unit is an important feature of the invention. Its oblong tubular housing 19 is not only hollow but is shaped to form a suitable hand grip or handle and together with the end plugs 12 and 13 completely encloses electrical switch elements which control the release of the target traps. Inasmuch as the electrical release unit of this invention is to be used outdoors these switch elements 28 and 29 are preferably of water proof construction, each being completely enclosed in any suitable resilient, water proof, insulating material such as plastic or rubber. Each switch is a snap action type, normally open, single pole switch. For the purpose of mounting them, there is provided for each a saddle-shaped switch holder such as 25 and 26. Holder 25 is mounted on the oblong housing 19 by means of any suitable fasteners such as 40 to clamp switch 28 in fixed position within the housing. Holder 26 likewise is mounted on the housing 19 by fasteners such as 40 to clamp switch 29 in fixed position within the housing. Each of the holders is provided with an opening to permit the protruding, pressure-receiving and movable portion of each switch to extend through the holder for movement by the switch operating pressure points or protrusions such as 51 and 52 of the switch actuator bars 23 and 24, respectively. These bars in turn are mounted preferably by means of a single pivot pin 53 passing through both the holders 25 and 26, although a separate pin for each may be used. One half of pin 53 is mounted in and between the upstanding flanges 55 and 56 of holder 25. Similarly the other half of pin 53 is mounted by means of the upstanding flanges 57 and 58 of the holder 26. The distal end of each bar is provided with a pair of ridges, the inner of each of which 59 is adapted for being pressed by the respective one of the "singles" release buttons 20 or 21. The outer ridge 60 of each of the bars 23 and 24 is adapted to be acted upon simultaneously by the "doubles" release button 22 with increased mechanical advantage with some additional leverage to compensate at least in part for the increased pressure needed for closure of both of the switches as compared to one alone. The release buttons 20, 21 and 22 are also mounted within the housing but with suitable protrusion therefrom adjacent one end of the unit 2 to permit manual operation from the exterior by means of the thumb of the hand holding the unit.

Either before or during assembly, bars 23 and 24 are adjusted in shape or position to insure simultaneous operation of the switches for throwing "doubles." For continued uniformity of operation the bars 23 and 24 are otherwise of sufficient rigidity to maintain adjusted shape. Longitudinal corrugations may be provided, if necessary, in these bars for the purpose of imparting a substantial degree of rigidity where it is not obtainable with the type or thickness of material employed in the bars.

The end plugs 12 and 13 have formed on an exterior surface suitable trunnion-receiving mounting sockets. It will be understood that alternately the end plugs of the housing may be each provided with a pair of trunnions while the resilient arms are provided with the sockets. Furthermore, other schemes of reversible connection may be employed such as one using a permanent connection between the end plugs and the arms of a rotatable spring clip or bracket including a suitable detent arrangement for holding the bracket in one or the other of two positions. Such a bracket, for example, would be one having a rotatable rivet type of joint at its midpoint and having embossed protrusions on each side of the joint

for snapping into mating recesses or holes in the back of the board.

The upper plug 12 which is attached to oblong housing 19 by fasteners 41 has trunnion-receiving sockets 8 and 9. The lower plug 13 which is attached to housing 19 by fasteners 41 is provided with sockets 10 and 11. In addition, lower plug 13 is provided with a central aperture 14 for passageway of the end of the control cable 15 into the interior of the housing where suitable connections may be made. To take up the end thrust of the cable, a particularly suitable clamp bushing such as 16 is provided. This takes the form of a split collar having a substantially circumferential flange for bearing against the shoulder formed between the outer portions of aperture 14 and the enlarged inner portion. Under the fasteners 41, which attach the lower plug 13 to housing 19, there are provided the clamp bushing screws 17 and 18 for tightening the clamp 16 on the end of the cable.

Control cable 15 is of any suitable type. In this embodiment it carries three electric conductors namely 30, 31 and 32, one set of the ends of which are connected within the housing to corresponding lead wires such as 30a and 32a of switch 28 and 31a and 32b of switch 29 respectively. Externally of unit 2, conductor 30 is connected in any suitable way as an extension to the release control line 157 which together with power line 156 governs the controlling circuit of the electrically responsive release device of the trap located in the "high house" 109 (Fig. 1). In a similar manner conductor 31 is connected as an extension of the controlling line 157a which together with power line 156a governs the controlling circuit of the electrically responsive release of the trap located in the "low house" 110 (Fig. 1). The conductor 32 is connected in junction box 160 in common with the return power lines 153 and 153a. Lines 153 and 156 provide driving power for the trap of house 109 while lines 153a and 156a provide the driving power for the other trap. These lines are insulated from each other and may be conveniently formed as a three conductor cable such as 111 extending to house 109 or 112 extending to house 110. Connection is made to the source of power 154 by means of a double pole fused disconnect switch 155.

In operation the first thing done by an attendant, who keeps score with his right hand, is to mount the switch unit 2 on the board 1 by placing the trunnion 7 in the socket 9 and placing trunnion 6 in socket 8. This can be readily done because of the resilience of the ends 4 and 5 of the bracket or spring clip 3. The resultant association of the parts is shown in Figure 2. A left handed operator will reverse the connections so as to place the trunnion 6 of the end 4 in socket 11 of plug 13 while placing the trunnion 7 of end 5 into the socket 10 of plug 12. The resultant association of parts is shown in Figure 3.

With the parts thus assembled, the attendant is enabled to both keep score and operate the traps in accordance with the signals received as the attendant moves freely with the portable skeet release device of this invention in desired relatively close proximity with the contestants whom he may follow along or back of the walk 113 which may be provided on the skeet field. The left hand release button 20 serves to close the circuit of lines 156 and 157 going to the house 109 located on the left hand side of the field. The right hand release button 21 controls the circuit lines 156a and 157a of the house 110 on the right. The middle or "doubles" release button 22 bears on both actuator bars 23 and 24 and when pressed closes both switches 28 and 29 simultaneously to release both traps.

It will be noted that the connection sockets are paired off adjacent the lateral ends of the plugs 12 and 13 so as to cause the switch unit 2 to extend sufficiently and uniformly from the board 1 to leave enough room for

convenient grasping and working with either hand without either interference from the board or the control cable. An awkwardly insufficient or excessive extension of unit 2 from board 1 is also thus avoided. The sockets are located symmetrically with respect to the centerline of the switch unit so as to present equally convenient arrangements to either the right or the left hand of an attendant. With the apparatus of this invention the entire game can be controlled by a single attendant who is enabled to follow the contestants from station to station for better reception of signals, maintain control over the traps from any point at all times, and keep score as well.

It is evident that, although two switches are shown in the release unit, three switches may be housed therein with suitable rearrangement of the wiring. It is also evident that suitable field circuits other than that shown in Figure 1 may be used.

Since many other embodiments of this invention may occur to those skilled in the art it is to be understood that the foregoing is intended by way of illustration of a preferred embodiment and not as a limitation of the scope of the present invention except as set forth in the appended claims.

What I claim as my invention is:

1. A skeet target trap portable control device adapted to permit a single field attendant to move in relatively close proximity with the contestants for reception of their signals calling for operation of the trap and to effect the separate or simultaneous release of said traps in accordance with said signals for shooting of the released targets and to keep score while judging the results of said shooting all by means of said device comprising a rectangularly shaped board for supporting a score card, elongated handle means graspable by the fingers of one hand of said attendant and containing electric switch means for releasing said traps controllable by switch actuator means mounted adjacent one end of said handle means and protruding therefrom in accessible relationship with respect to the thumb of said hand for selective operation without impairment of the grasp of the handle, and a U-shaped bracket mounted adjacent a lateral edge of said board releasably engageable with the remotely spaced ends of said handle in offset relationship with respect to the longitudinal axis of said handle means, whereby said board is maintained in desired supported relationship by either the right or the left hand of the attendant, the other hand being free for score keeping on said board.
2. The device of claim 1 wherein the bracket has re-

silient end portions and wherein the attachment between said clip and handle members comprises trunnions on one of said members receivable in corresponding sockets on the other.

3. A skeet target trap portable control device adapted to permit a single field attendant to move in relatively close proximity with the contestants for reception of their signals calling for operation of the trap and to effect the separate or simultaneous release of said traps in accordance with said signals for shooting of the released targets and to keep score while judging the results of said shooting all by means of said device comprising a board reversible with respect to its lateral edges for supporting a score card, handle means graspable by the fingers of one hand of said attendant and containing electric switch means for releasing said traps controllable by switch actuator means mounted in accessible relationship with respect to a finger of said hand for selective operation without impairment of the grasp of the handle, and bracket means mounted adjacent a lateral edge of said board releasably engageable with said handle in reversible relationship with respect to said handle means, whereby said board is maintained in desired supported relationship by either the right or the left hand of the attendant, the other hand being free for score keeping on said board.

4. The control device of claim 3 wherein the electric switch means comprises a pair of normally open trap operating circuit closure means, a pair of closure operating bars movably mounted opposite said closure means, each bar being adapted when pushed for closing a corresponding one of said closure means, and at least two push-button means adapted to engage with at least one of said bars and mounted to protrude in sufficiently close proximity from the handle means so as to be accessible to one finger manipulation whereby at least one of said bars may be manually pushed to selectively operate the traps severally and in unison by a single thrust of said finger.

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