Oct. 27, 1942. F. M. NEW 2,300,132

TORPEDO SHOOTING GAME APPARATUS

Filed Sept. 21, 1940 2 Sheets-Sheet 1

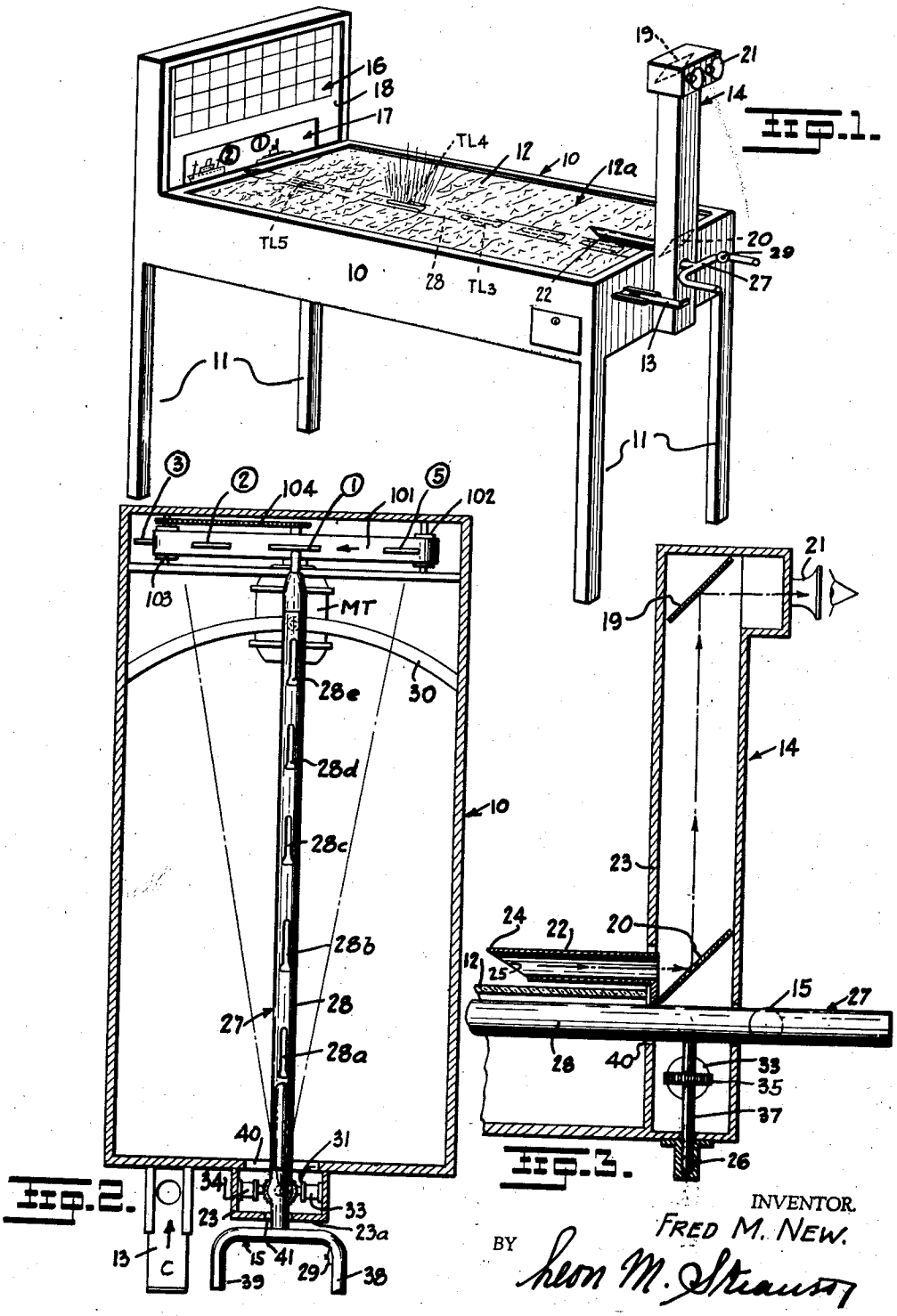


Fig. 1.

Fig. 2.

Fig. 3.

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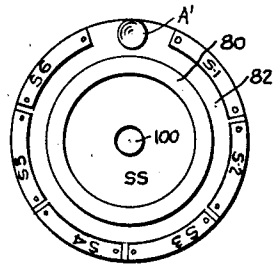


FIG. 6.

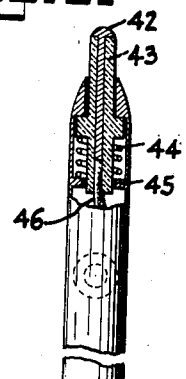


FIG. 4.

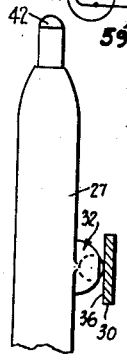


FIG. 5.

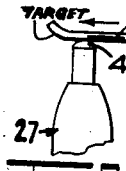


FIG. 7.

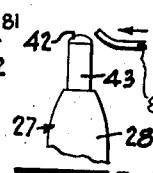


FIG. 8.

FIG. 3.

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TORPEDO SHOOTING GAME APPARATUS

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Application September 21, 1940, Serial No. 357,748

9 Claims. (Cl. 273—101.2)

This invention relates to electrically operated "shooting game" apparatus and more particularly to a "torpedo-shooting game" apparatus.

One of the primary objects of this invention is to provide a projectile or torpedo simulating "shooting" apparatus of the above nature in which required skill to operate said apparatus approaches very closely to the actual conditions and circumstances attending the "torpedoing" of a moving target and in which stages of the "torpedo" course may be visualized by the operator and observers for evidencing the relative movements of a "released torpedo" and said moving target.

It is another object of the present invention to provide means for aiming at a moving target or successive targets in motion, preferably in the form of warships, through a sight or optical device having the form of a periscope.

It is still another object of the present invention to provide electrically operated means for "shooting" at a moving target while the aforesaid optical device when moved in a position relatively to said target, is temporarily fixed in said position during the "shooting" or "torpedoing" action.

It is a further object of the present invention to provide means for imitating or simulating the movement of a "torpedo" under the water level as if "shot" by a torpedo—or U-boat in the direction of a moving ship.

Yet, another object of the present invention resides in the provision of means to indicate various positions of said "torpedo" during its course against said moving ship or target.

It is a still further object of the present invention to provide means for producing a time delay between the actual "release" of a "torpedo" and the "hit" of a "torpedo" or similar projectile against a target preferably in motion, at which said periscope device has been directed prior to the "torpedo release" action.

Still a further object of the present invention is to provide means to "hit" said moving target at predetermined positions thereof, said periscope device and the "torpedo shooting" device preferably connected thereto being turnable into a position relatively to said predetermined target positions.

These and other objects and advantages of the invention will appear from the following disclosure thereof together with the attached drawings which illustrate a certain form of embodiment thereof. This form is shown for the purpose of illustrating the invention, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Fig. 1 is a perspective view of an apparatus embodying the invention.

Fig. 2 is a top plan view of the apparatus shown in Fig. 1, partly in section.

Fig. 3 is a fragmentary detail of construction employable in the invention.

Fig. 4 is a top plan view of another detail of construction employable in the invention, parts being shown in section and broken away.

Figs. 5, 7 and 8 show fragmentary views of electrical contact means employable in the invention.

Fig. 6 illustrates an electrical part employable in the invention.

Fig. 9 shows a wiring diagram for use in connection with the invention.

Referring now to the drawings and more particularly to Fig. 1, there is disclosed a casing 10 supported by four legs 11; the top plate 12 of said casing 10 may be made of translucent material and painted in any desired fashion, preferably indicating sea waves 12*a*. At one end of casing 10, there are provided the conventional coin-slide mechanism 13, and a periscope or similar optical device 14, through which extends a "torpedo shooting" device 27 including steering and releasing mechanisms 15, as will be explained further below. From the opposite end of casing 10 projects upwardly a scoreboard 16 and target housing 17 covered by a glass panel 18.

Periscope device 14 contains angularly disposed mirrors 19, 20 of conventional structure and is provided with a binocular-like arrangement 21 at one end thereof. A tubular or similar member 22 extends substantially horizontally from housing 23 and above said glass panel 12. The free end 24 of tubular member 22 is obliquely cut as indicated by numeral 25 to enlarge the view range of said periscope device, as will be hereafter set forth.

Within housing 23 of periscope device 14, there is pivotally and rotatably mounted as at 26 "torpedo shooting" device 27, which mainly consists of hollow tube 28, steering or control mechanism 15 including release button 29, tube support bar 30, and clutch 31. Clutch 31 is encased in housing 23, which contains two solenoids 33, 34 and ratchet wheel 35.

Hollow tube 28 is provided at its upper face with a plurality of elongated torpedo-shaped openings 28*a*, 28*b*, 28*c*, 28*d*, 28*e* and carries preferably red light bulbs TL_1, TL_2, TL_3, TL_4, and TL_5 positioned within said tube 28 and below said respective openings (not shown in Fig. 2, but indicated in Fig. 9) for a purpose which will become more apparent during the course of the specification. Tube 28 is supported on circularly-shaped bar 30 and rests thereon preferably by

means of a ball bearing 32, the ball 36 of which may roll over said bar 30 and is guidable therealong (Fig. 5).

Clutch or clamp mechanism 31 is arranged in the lower part of housing 23 and comprises ratchet wheel 35 (or two complementary ratchet segments) swingable together with tube 28, the latter being fixedly connected to and supported by stem 37 which in turn carries said ratchet wheel 35; and further solenoids 33, 34 having each a slidable armature provided with a respective toothed bow end piece 33a, 34a for engagement with said wheel 35. It will be obvious from the above that upon gripping of handles 38, 39 by the operator "torpedo-shooting" device 27 may be swung in a semi-circular path, stem 37 being rotatable about bearing 26 whereby ball 36 of ball bearing 32 can roll on bar 30 to any desired position relatively thereon. On account of rotatable movement of stem 37 ratchet wheel 35 will follow this movement. In order to allow such swingable or rotatable movement about bearing 26, casing 10 is provided with an elongated opening 40, whereas a similarly shaped slot or cut-out 41 is disposed opposite said opening 40 in the front wall 23a of housing 23. On handle 38 of steering mechanism 15 there is provided press button 29 to establish electrical connections in a wiring system which is about to be described.

At the forward end of hollow tube 28, there is slidably disposed electrical contact piece 42 carried by insulator piece 43. Insulator piece 43 is urged out of tube 28 by means of a spring 44 seated on partition 45 of tube housing 28 so that contact piece 42 will normally assume its outermost position (Fig. 8). Electric current may be supplied to contact piece 42 by means of a cable 46 from a power line, and according to a wiring diagram, shown in Fig. 9.

The purpose of this game apparatus is to establish electrical contact between the aforesaid contact piece 42 (during the period of time the said contact piece is switched in a circuit described hereinbelow with respect to Fig. 9) and one of the targets 1 to 5 carrying each one or more contact points (not shown) and supported on a belt 101 which is trained over rollers 102, 103. The said targets are arranged in spaced apart relation on said belt 101, the latter being preferably continuously moved in the direction of the arrow (indicated on belt 101 of Fig. 2) by means of a suitable gearing 104 from motor MT.

The operation of the "torpedo-shooting game" apparatus is as follows:

Upon insertion of a coin (not shown) in coin slide 13 the apparatus may be put in operation by inwardly pushing said coin slide according to arrow C. Thereby, motor MT and a time switch (not shown), as well as transformer T1 are connected to the power line.

Targets 1 to 5 now move together with belt 101 and are successively exposed to view in housing or at window 17. The "torpedo-shooting" device 27 will then be directed by the operator (viewing through the periscope 14) toward one of the targets coming into view at said window 17 and with the purpose to "hit" said target taking into account that lapse of time will be necessary for the release and travel course of a "torpedo" or similar projectile against said tarket. A "hit" will be made upon establishment of an electrical connection between contact piece 42 and a contact point (not shown) of said target within a circuit about to be described hereafter, said "hit" being indicated by a hit counter HC on score board 16.

As set out above, the "torpedo shooting" device 27 will be first swung about stem 37 (in the direction of arrows TB or TA) and is then adjusted on bar 30 relatively to a moving target approaching contact piece 42 of said device 27, sufficient time being allowed to permit the "torpedo" to make its travel course along torpedo tube 28. The operator by pressing the release button 29 for "shooting" the torpedo establishes the following circuits (Fig. 9):

Release button 29, leads 61, 62, 63, contact point A of motor switch, contactor 64, lead 65, legs S, S_1 of the power line, lead 66, motor brush 66a, motor brush 66b and back through lead 67 to button 29.

Motor M after being thus connected to the power line rotates in the direction of the arrow (indicated in Fig. 9) and since contactor 64 of motor switch MS is mechanically connected to motor M by means of a shaft 100, contactor 64 will follow the rotation of motor M, leaves its rest position at A and moves on ring segment contact 64a from which latter current will then be further supplied through leads 68, 69 to motor brush 66b (brush 66a being connected through lead 66 directly to leg S_1 of the power line).

Motor M performs a single revolution (upon pressing said release button 29) and rotates simultaneously by means of shaft 100 contactors 54 and 55 which are fixed to said shaft. Contactor 55 actuates thereby magnet clamp switch CS, whereas contactor 54 operates with segment switch SS for successively operating "torpedo-course" lamps TL_1, TL_2, TL_3, TL_4, TL_5 and finally contact piece or block 42 for timely electrical connection with a contact point of one of the targets aimed at. Thus, segment switch SS included in the circuit upon actuation of switch or release button 29 forms a means retarding electrical connection with contact piece or block 42.

After reaching the end of segment contact 64a, contactor 64 leaves the latter and thus interrupts current supply to motor M. Contactor 64 will come to rest again upon contact point A of motor switch MS (shown in dotted lines), because due to its inertia shaft 100 will continue to rotate for a moment after disconnection of motor current has been effected.

During the above-mentioned single revolution of motor M contactor 54 which is fixed to motor shaft 100 and connected through leads 52 and 50 to the secondary TS of transformer T_1, moves from rest position A' to the first segment S_1 of segment switch SS establishing thereby a circuit for lamp TL_1 through leads 71, 59, 58, 57, 56 back to the secondary TS of transformer T_1. Contactor 54 is then moved to segment S_2, interrupting the current supply to TL_1 and establishing for TL_2 the following circuit: Secondary TS of transformer T_1, leads 50, 52, contactor 54, segment S_2, leads 72, TL_2, common lead 60, leads 59, 58, 57, 56 back to the secondary TS of transformer T_1.

It is apparent from above without requiring any further explanation that thus lamp TL_1 (through segment S_1 and lead 71), lamp TL_2 (through segment S_2 and lead 72), lamp TL_3 (through segment S_3 and lead 73), lamp TL_4 (through segment S_4 and lead 74), lamp TL_5 (through segment S_5 and lead 75) will be consecutively switched on and then out again until contactor 54 (during the said motor revolution) comes to lie on segment S_6 establishing a circuit

through leads 76, 46 and contact piece 42 with one selected target 1, 2, 3, 4 or 5 which are each electrically connected (f. e. by brush or spring contact, not shown) with lead 70 and hit counter HC and further with common lead 60 and secondary TS of transformer T_1 (through leads 59, 58, 57, 56) as set forth above. The time element required to establish this latter circuit is fixed by the "torpedo-course" lamp arrangement TL_1 to TL_5, and said circuit will only be established after these lamps have been operated and the target selected for "hit" reaches and is with its own contact point in alignment with contact block or nose contact 42, thus allowing establishment of electrical connection with the section (leads 70, 60) of target and hit counter circuit explained hereinabove.

Since, as mentioned hereinbefore, contactor 55 of magnet clamp switch CS is also driven by motor shaft 100, contactor 55 will move from its rest position A'' to segment ring 55*a*, thus establishing for clamp or clutch mechanism 31 the following circuit: contactor 55, leads 53, 51, 50, secondary TS, leads 56, 77, solenoids 34 and 33, leads 78, 79 back to segment 55*a*. During the time contactor 55 moves on segment 55*a*, clamp solenoids 34 and 33 will be energized whereby armatures 34*a* and 33*a* will be urged against ratchet wheel 35 thus holding "torpedo shooting" device 27 in its aligned position resulting from a swinging movement thereof in either direction of arrows TA, TB along guide bar 30 and about bearing 26 of stem 37.

It will be apparent from above that upon turning and directing "torpedo shooting" device 27 into a predetermined position relatively to that of a selected target (1, 2, 3, 4, or 5) in motion and upon operation of release button 29, device 27 will remain in said predetermined position by means of actuation of said clamp mechanism 31, whereas motor M performs its one revolution causing contactor 54 to switch on successively TL_1, TL_2 etc. until contact piece 42 is included in the circuit above referred to for (hitting) electrically contacting or missing said selected target.

Fig. 6 shows in greater detail segment switch SS, contactor part 54 being omitted for the sake of clarity. Current to contactor 54 is supplied by means of a contact-ring arrangement 80 of known construction. Segments S_1 to S_6 are supported on plate 82 from which they are insulated in any known manner. Block A' is of similar construction and receives contactor 54 during rest position of the apparatus.

Figs. 7 and 8 show respectively stages of movement of a target part carrying a contact point 81 relatively to nose contact 42 of "torpedo"-tube 28.

Fig. 8 indicates contact piece 42 in its outermost position, whereas Fig. 7 illustrates contact piece 42 in its retracted position, a target part sliding along and being just about to engage its contact point or lug 81 with nose contact 42, for a purpose set out hereinabove.

After completion of the single revolution of the motor M contactors 54, 55 and 64 will return to their respective initial positions on A', A'' and A. While the time switch (not shown) is still put into power line, as above referred to, the game apparatus may be again operated by directing "torpedo-shooting" device 27 against one of the targets selected for "hit" and then pressing switch or button 29 to undisplacedly adjust the said device 27 by the clamp mechanism 31 and to release and "shoot" the "torpedo" in the same manner and for the same purpose described above.

The above-mentioned time switch is conventional in coin-operated amusement devices of similar type and performs the same function in the present apparatus of terminating operation thereof by switching off motors M and MT after a certain lapse of time. Operation of the machine will again take place upon insertion of another coin.

As it is illustrated in Fig. 1 the course, which the "torpedo" takes during operation, is viewable in stages through plate 12 and the sea waves 12*a* provided thereon. Fig. 1 shows the "torpedo" in its fourth stage or position indicated by lamp TL_4 within tube 28.

It will be obvious and therefore to be understood that the inventive idea, an example of which is herein disclosed, may be utilized for other game apparatus. However, it is to be stressed that the invention is not to be construed as being confined or limited to the particular embodiment and/or means disclosed herein, keeping always in mind that the problem solved by this invention is the electrically "shooting" against a target by which the time element is taken into account and relied on, which time element is determined by the course of travel or similar distant trajectory of the "projectile" necessary for reaching and "hitting" a target aimed at. This target may be either stationary or movable in any desired direction relatively to the "shooting" device proper.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantages before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principal involved or sacrificing any of its advantages.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and its operation may be made by those skilled in the art without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. An electrically operated "shooting" apparatus of the character described comprising a first electrical circuit including switch means and a first contact means, electro-mechanical means, a second electrical circuit including a second contact means, and electrical retarding means in said first circuit and adapted upon operating said first circuit by said switch means to delay inclusion of said first contact means in said first circuit for electrical connection of said first contact means with said second contact means, said second circuit being established upon electrical engagement of both said contact means, said first contact means and said second contact means being movably arranged with respect to each other, said first contact means being finally maintained in position by said electro-mechanical means upon operation of said first circuit by said switch means.

2. In a game apparatus of the character described, an electric circuit including a current

supply source, contact members relatively movable to each other, and electric retarding means for delaying inclusion in said circuit of one of said members, both said members being connectable with one another whereby upon inclusion of said one of said members in said circuit and upon establishment of the connection of both said members the latter are put into said circuit for operation thereof, said electric retarding means including a plurality of swingably arranged lamps and controlling means for said lamps whereby said lamps may be consecutively put in operation before said inclusion of said one of said members takes place.

3. In a game apparatus of the character described, an electric circuit including a current supply, contact members relatively movable to each other in the same plane and direction, and electric retarding means for delaying inclusion in said circuit of one of said members, both said members being connectable with one another whereby upon inclusion of said one of said members in said circuit and upon establishment of the connection of both said members the latter are put into said circuit for operation thereof, said electric retarding means including a plurality of swingably arranged lamps and controlling means for said lamps whereby said lamps may be consecutively put in operation before said inclusion of said one of said members takes place, one of said contact members being coordinated to a shooting device, the other of said contact members being coordinated to a target for said shooting device.

4. In a game apparatus of the character described, an electric circuit including a current supply source, contact members arranged for movement with respect to each other, and electric retarding means for delaying inclusion in said circuit of one of said members, both said members being electrically connectable with one another whereby upon inclusion of said one of said members in said circuit and upon establishment of the connection of both said members the latter are put into said circuit for operation thereof, said electric retarding means including a plurality of swingably arranged lamps, connected to a simulated shooting device and controlling means for said lamps whereby said lamps may be consecutively put in operation before said inclusion of said one of said members takes place, one of said contact members being coordinated to said shooting device, the other of said contact members being coordinated to a target for said shooting device, said lamps indicating the direction and travel stages of a missile toward said target.

5. An apparatus of the character described comprising aiming means including a tubular member arranged for swingable movement and provided with a plurality of successive torpedo-shaped cut-outs, a plurality of lamps arranged in said member adjacent said cut-outs, respectively, an electric contact piece at one end of said member, a target movable in front of and past said electric contact piece and carrying a contact point adapted to register with said contact piece, and control means including circuits and an electric power source, said control means being adapted to close said circuit by successively including said lamps and said contact piece in said circuits, respectively, whereby said contact point of said target when moved in registry with said contact piece will cause signalling of result of said registry.

6. A game apparatus of the character described comprising an aiming device including a movably mounted member and electric retarding means carried by said member, an electric contact piece provided at one end of said member and located in advance of said retarding means, a plurality of targets arranged for movement in front of said contact piece, each target carrying a contact point adapted for engagement with said contact piece, circuits including a power source, control means connecting said circuits with said retarding means and with said electric contact piece successively, and signalling means includable in one of said circuits upon electrical engagement between one of said target contact points and said contact piece when the latter is moved into predetermined position relatively to one of said targets.

7. A game apparatus of the character described comprising an aiming device, at least one target arranged for movement in front of said aiming device, circuit means including a power source and control means for said circuit means, said aiming device being arranged for swingable movement relatively to said movable target, said target and said aiming device having each a contact point for electrical engagement with each other, electric contact delay means connected with said aiming device and adapted to move therewith upon movement of the latter in the direction toward said target, means for maintaining in position said aiming device when moved into said direction toward said target, said contact delay means being adapted to retard transfer of electric current to said electric contact point of said aiming device while said target approaches during its movement said electric contact point of said aiming device, and signalling means for indicating a "hit" and includable into one of said circuit means upon engagement of said contact point of said aiming device with the contact point of said target.

8. In combination with electrically operated "shooting" apparatus, at least one movably arranged target, a swingably disposed aiming device in front of said target, electrically engageable contact means, respectively provided at said aiming device and at said target, of electrical retarding means, said retarding means being lamp means carried by and movable with said aiming device, and electrical control means including electric circuits, said control means being adapted to put into said circuits, respectively, said lamp means simulating stages of a "fired" projectile and subsequently said contact means of said aiming device whereby upon electrical engagement of the latter contact means with said target contact means a "hit" is established.

9. The combination of electrically operable "shooting" means including a movably arranged target and swingably disposed aiming means provided with a trigger switch, with electric retarding means connected to said aiming means and arranged for movement therewith, said target and said aiming means having each a contact point connectable to an electric circuit, said contact points being engageable with one another upon adjustment of said aiming means with respect to said target, one of said contact points being includable in said electric circuit upon operation of said trigger switch whereby electric current is caused to pass through said retarding means before said one contact point is cut into said circuit.

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