

No. 760,012.

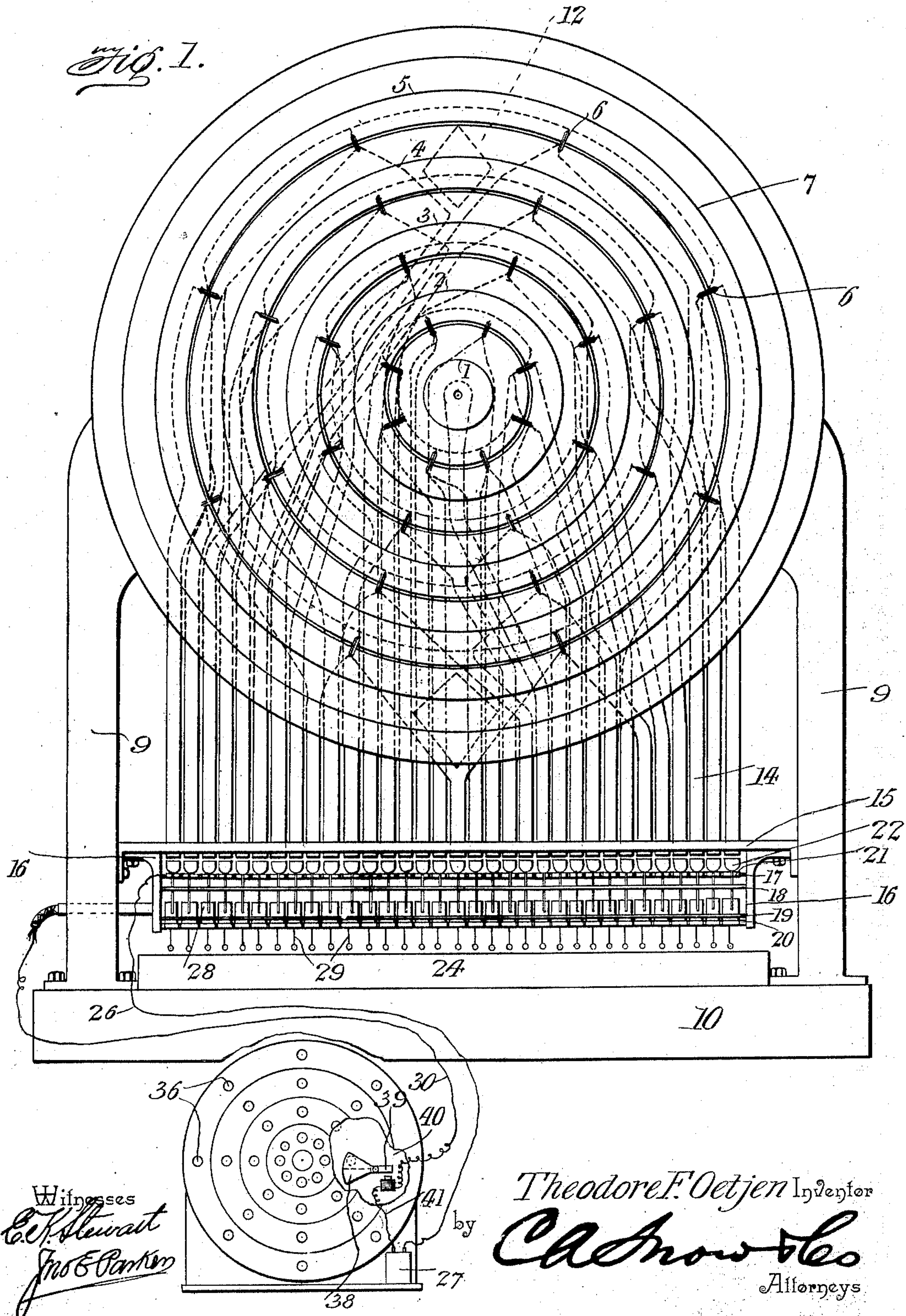
PATENTED MAY 17, 1904.

T. F. OETJEN.
ELECTRIC SELF REGISTERING TARGET.

APPLICATION FILED APR. 14, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



No. 760,012.

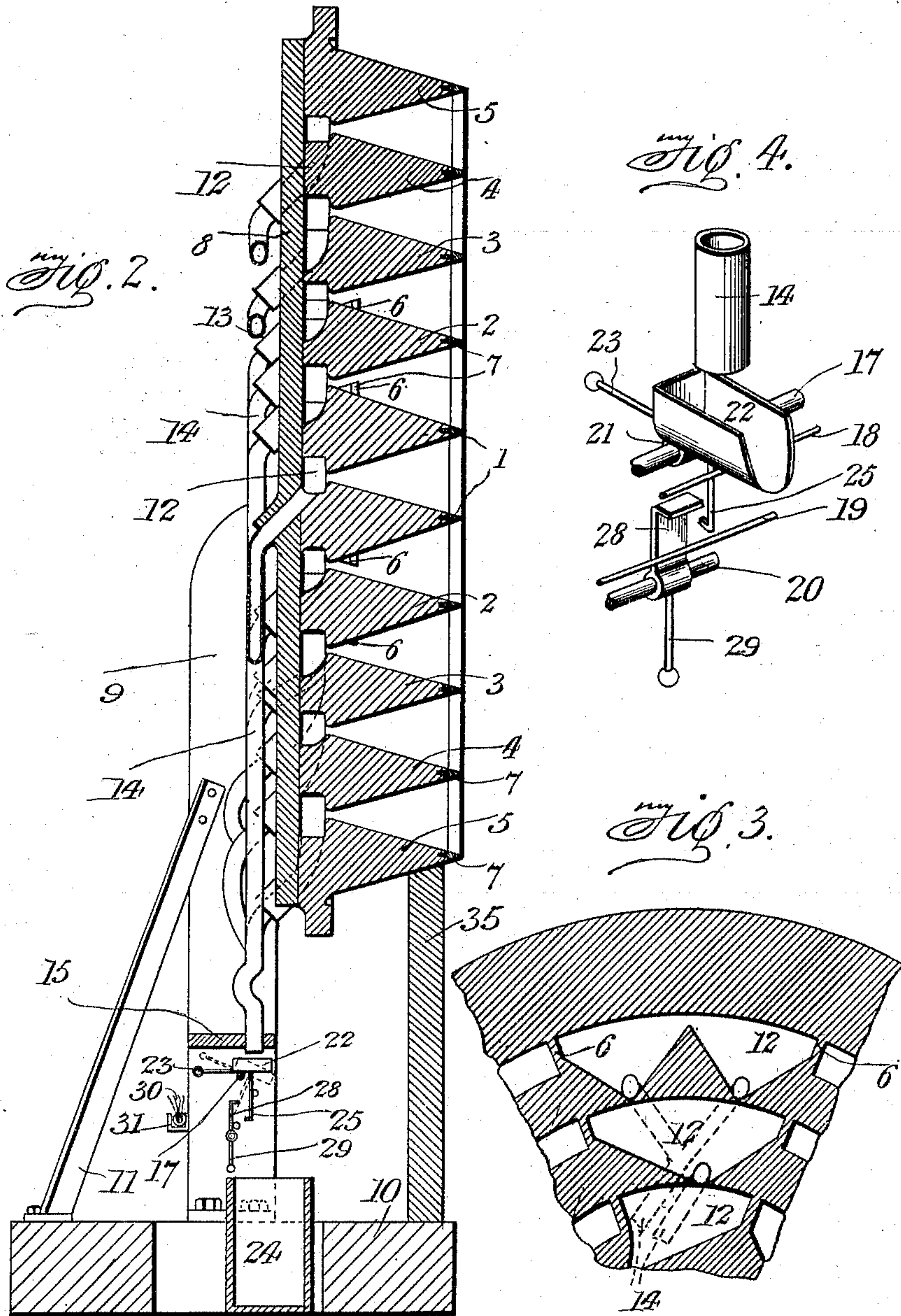
PATENTED MAY 17, 1904.

T. F. OETJEN.
ELECTRIC SELF REGISTERING TARGET.

APPLICATION FILED APR. 14, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses
E. H. Stewart
John E. Parker

Theodore F. Oetjen Inventor
by *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

THEODORE F. OETJEN, OF AUGUSTA, GEORGIA.

ELECTRIC SELF-REGISTERING TARGET.

SPECIFICATION forming part of Letters Patent No. 760,012, dated May 17, 1904.

Application filed April 14, 1903. Serial No. 152,613. (No model.)

To all whom it may concern:

Be it known that I, THEODORE F. OETJEN, a citizen of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented a new and useful Electrical Self-Registering Target, of which the following is a specification.

This invention relates to certain improvements in targets, and has for its principal object to provide a target which may be used in rifle-ranges, shooting-galleries, and other places and in which the target will register the points struck by the projectile, the indicating device being placed at any convenient point and connected by suitable energized circuits to the target.

A further object of the invention is to provide a self-registering target in which the registering or indicating mechanism is actuated by the weight and not by the impact force of the projectiles.

A still further object of the invention is to provide a target in which the circuit-closing means are distant from the face of the target, which is protected from injury, the target proper being formed of metal and being practically indestructible when the projectiles ordinarily employed in target practice are used.

A still further object of the invention is to provide a novel form of circuit-closing means for closing electrical circuits connected to the indicator mechanism.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a front elevation of a target constructed in accordance with the invention. Fig. 2 is a central vertical section of the same on the line 2 2 of Fig. 1. Fig. 3 is a detail view of a portion of the target. Fig. 4 is a detail perspective view of one of the circuit-closing devices.

Similar numerals of reference are employed

to indicate corresponding parts throughout the several figures of the drawings.

The front face of the target is formed of five spaced rings 1, 2, 3, 4, and 5, arranged concentrically and each of tapering form in cross-section, as indicated more clearly in Fig. 2. The five rings are preferably cast integral with each other, being united at intervals by small radial cross-bars 6, preferably arranged at equidistant points and serving to divide the spaces between the several rings into pockets, there being in the present instance thirty-two pockets formed between the several rings and a central pocket at the center of the inner ring 1 to form a "bull's-eye." The upward faces of the connecting-bar 6, as well as the apex of each of the rings, is formed of a thin plate 7 of tool-steel, which, if struck by the projectile, divides the latter and directs the two portions into different pockets in the target. The ring structure is bolted or otherwise secured to a circular back plate 8, which is secured to or formed integral with two or more standards 9, rising from a suitable base 10, which may be formed of wood or masonry or may be placed on a suitable float for use at sea when necessary. The structure is preferably braced by inclined angle-bars 11, extending from the base to the standards, as shown in Fig. 2; but the construction may be altered and modified in accordance with the purpose for which it is intended. The several rings being inclined or tapering in cross-section present contracted passages which lead to enlarged pockets 12, formed by coring the rear face of the target, the rear walls of these pockets being formed by the circular plate 8, and each pocket is separate and distinct from the others and connected with suitable means for directing the entering projectile to a circuit-closing device, the projectile entering one pocket closing one circuit, while a projectile entering in an adjacent pocket closes an entirely separate circuit.

On the rear face of the back plate 8 are formed integral bosses 13 of a number equal to the number of pockets, (thirty-three in the present instance,) and each boss is tapped to form a discharge-opening leading from the base of the pocket, an outlet-pipe 14 being in

communication with the opening in order to receive the projectile and direct the same to the circuit-closing devices at the base of the target, and the lower portion of each of the
 5 pipes 14 is preferably reversely curved, as shown in Fig. 1, in order to slightly retard the discharge of the projectile.

At a point under the target is a cross-bar 15, connected to the two standards 9 and serving as a bottom support for the several discharge pipes or tubes. This cross-bar is provided with a pair of depending brackets 16, which are connected by a plurality of small rods 17, 18, 19, and 20. The rod 17 serves as
 15 a fulcrum for a plurality of small bars or plates 21 of a number equal to the number of discharge-pipes, and on each of these bars is placed a small tray 22, which is counterbalanced by a weight 23 at the opposite end of the bar. Below each discharge-pipe is placed
 20 one of the trays 22, and when said tray receives the projectile the weight of the latter will tilt the tray and effect the discharge of the projectile into a suitable receptacle 24. To each bar 21 is secured a depending contact-finger 25, formed of German silver or other
 25 good conducting metal, this contact-finger normally resting against the rear face of the cross-bar 18 and serving to prevent excessive upward movement of the tray 22. The pivot-bar 17, which is preferably insulated from the supporting-brackets, is electrically connected to a line-wire 26, forming part of an electrical
 30 circuit, including a source of electrical energy, represented in the present instance by the battery 27.

The rod 19 serves as a support for a plurality of contact-fingers 28, arranged immediately to the rear of the contact-fingers 25 and normally maintained in vertical position by depending weight-rods 29, as shown more clearly in Fig. 2, and the upper end of each of the fingers is preferably flanged to be engaged by the oppositely-turned end of the contact-fingers 25. The several fingers 28 are held from
 45 movement in the direction of the fingers 25 by the cross-rod 20, this rod also serving to check any oscillating movement of the fingers after a movement of the latter by contact with one of the tray-operating fingers 25. The several contact-fingers are electrically connected to line-wires 30, there being a separate wire for each finger and all of these being supported in a suitable trough 31 at the rear of the target.

50 The circuit-closing mechanism is protected from injury by a metallic plate 35, placed below the front portion of the target, as illustrated in Fig. 2, or other suitable means may be employed in order to prevent accidental
 55 injury from projectiles.

At a suitable point on the field or in the shooting-gallery, or, if at sea, on the vessel, is placed an indicator, which may be of the general character shown in Fig. 1 and comprising

a circular plate provided with five rings, each representing one of the ribs of the target, and the spaces between the rings being provided with a number of small openings 36 of a number equal to the number of pockets in the target and arranged at points corresponding
 65 thereto. The annunciator mechanism may be of any desired character—as, for instance, a small shutter 38, having portions of different color, may be pivotally mounted back of each of the openings and provided with an armature 39, arranged within the field of force of
 70 an electromagnet 40, each of the magnets having connected with it one of the line-wires 30, the circuit being closed from thence by a return-wire 41 to the battery. 80

The projectiles employed should be of lead or other soft metal, so as to avoid injury to the target, and when they strike the latter are guided by the inclined ribs into the nearest pocket. The projectile thus entrapped falls
 85 through one of the pipes 14 into the tray 22 in communication with the receiving-pocket, and the weight of the projectile depresses the tray, forcing the hooked finger 25 to the rear and causing its engagement with the pivoted
 90 contact-finger 28, the two being held together partly by the weight 29 and partly by the weight of the projectile until the latter falls into the receptacle 24, after which the counterweight 23 will return the tray to its initial
 95 position, and the counterweight 29 will restore the contact-finger 28 to the vertical position. When the two contact-fingers are engaged, a circuit is closed through the proper electromagnet 40, corresponding to the position of
 100 the pocket in which the projectile was received, and the annunciator mechanism is operated to show the exact position on the target struck by the projectile. Should a projectile strike the knife-edge at the apex of one of the ribs,
 105 it will be cut in two and the parts deflected into different pockets, thus causing the operation of two of the annunciator-magnets. In such cases the lower or the higher score may be counted in accordance with a previous
 110 agreement.

While the target is primarily intended for use on rifle-ranges, it may be understood that it may be employed on floats for gun practice at sea, where rifles are placed in the bores of
 115 cannon, or on a smaller scale it may be employed in shooting-galleries and like places. The circuit-closing mechanism may be modified in a variety of ways, and the indicator mechanism, while preferably arranged in the
 120 form of a target, may be in the form of an ordinary annunciator having numbers or other designating-marks corresponding to the position or values represented by the different pockets on the target. It will further be
 125 understood that the number and size of the pockets may vary and that these may be, if necessary, provided with more than a single

outlet, as indicated in dotted lines in the upper portion of Fig. 1, wherein a pocket is shown as coupled by a Y to its discharge-tube.

Having thus described the invention, what is claimed is—

1. A target having a plurality of pockets, an open electrical circuit, an indicator therein, circuit-closing devices distant from the pockets and operable by the weight of projectiles, and means for guiding the projectiles from the pockets to the circuit-closing devices.

2. In a device of the class specified, a target having its front face divided into projectile-receiving pockets, and an independent circuit-closing means in communication with each pocket.

3. In a device of the class specified, a target having a plurality of projectile-receiving pockets, an indicator, an independent circuit-closing means in communication with each pocket, and electric circuits, including a source of electrical energy, extending from the circuit-closing means to the indicator.

4. In a device of the class specified, a target comprising a back and a plurality of spaced concentric rings, the annular spaces between adjacent rings being divided into a series of projectile-receiving pockets.

5. In a target, a plurality of projectile-receiving pockets, an indicator, an independent circuit-closing means for each pocket, and guiding devices for directing the projectiles from the pockets to the circuit-closing devices.

6. In a target, a plurality of projectile-receiving pockets, projectile-guiding means leading from the pockets, an indicator, and a circuit-closing means electrically connected to the indicator, said circuit-closing means being disposed at the discharge end of the projectile-guiding means.

7. In a target, a plurality of projectile-receiving pockets, an indicator, a circuit-closing means for each pocket disposed in the path of travel of an entrapped projectile, and an electric circuit for connecting said circuit-closing means to the indicator.

8. In a target, a plurality of projectile-receiving pockets, a series of pivotally-mounted trays, guiding-tubes leading from the pockets

to the trays and adapted to direct entrapped projectiles thereinto, a circuit-closing finger carried by each tray, a secondary contact with which said finger engages under the weight of a deposited projectile, an indicator, and an electric circuit connecting the circuit-closing devices to the indicator.

9. In a target, a plurality of projectile-receiving pockets, a pivotally-mounted counterweighted tray for each pocket, a projectile-guiding tube for delivering entrapped projectiles to the trays, a circuit-closing finger carried by each tray, a pivotally-mounted circuit-closing finger arranged adjacent to the tray-carried finger, a counterweight normally maintaining the second set of fingers in position, an indicator, and an electric circuit connecting the circuit-closing fingers and the indicator.

10. In a target, a front section formed of a plurality of spaced concentric rings and radial bars dividing the spaces between the rings into a plurality of pockets, a back section secured to said front section, standards forming a part of the back section, a cross-bar extending between the standards, a plurality of pipes leading from the cross-bar to the back section in communication at their upper ends with the projectile-receiving pockets, brackets depending from said cross-bar, a plurality of rods carried by said brackets, projectile-receiving trays mounted on one of said rods, counterweights for said trays, circuit-closing fingers depending from the trays, and adapted to engage another of the cross-rods to prevent excessive upward movement of said trays, a plurality of circuit-closing fingers pivotally mounted on a third rod, depending weight-rods connected to the second circuit-closing finger, an indicator, and an electric circuit connecting the indicator to the circuit-closing means.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THEODORE F. OETJEN.

Witnesses:

JUSTO G. HERNANDEZ,
LUIS FRANCO.