

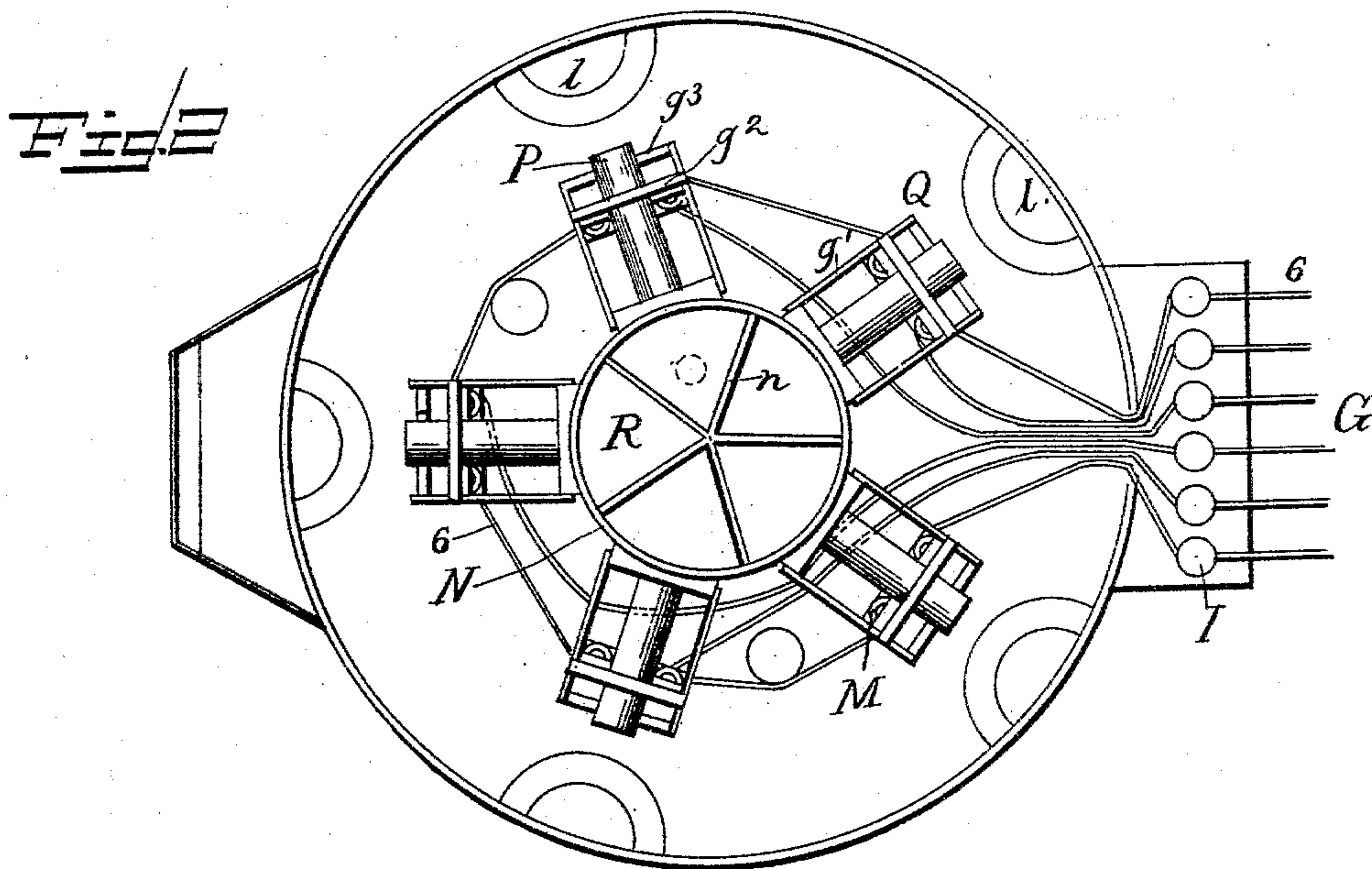
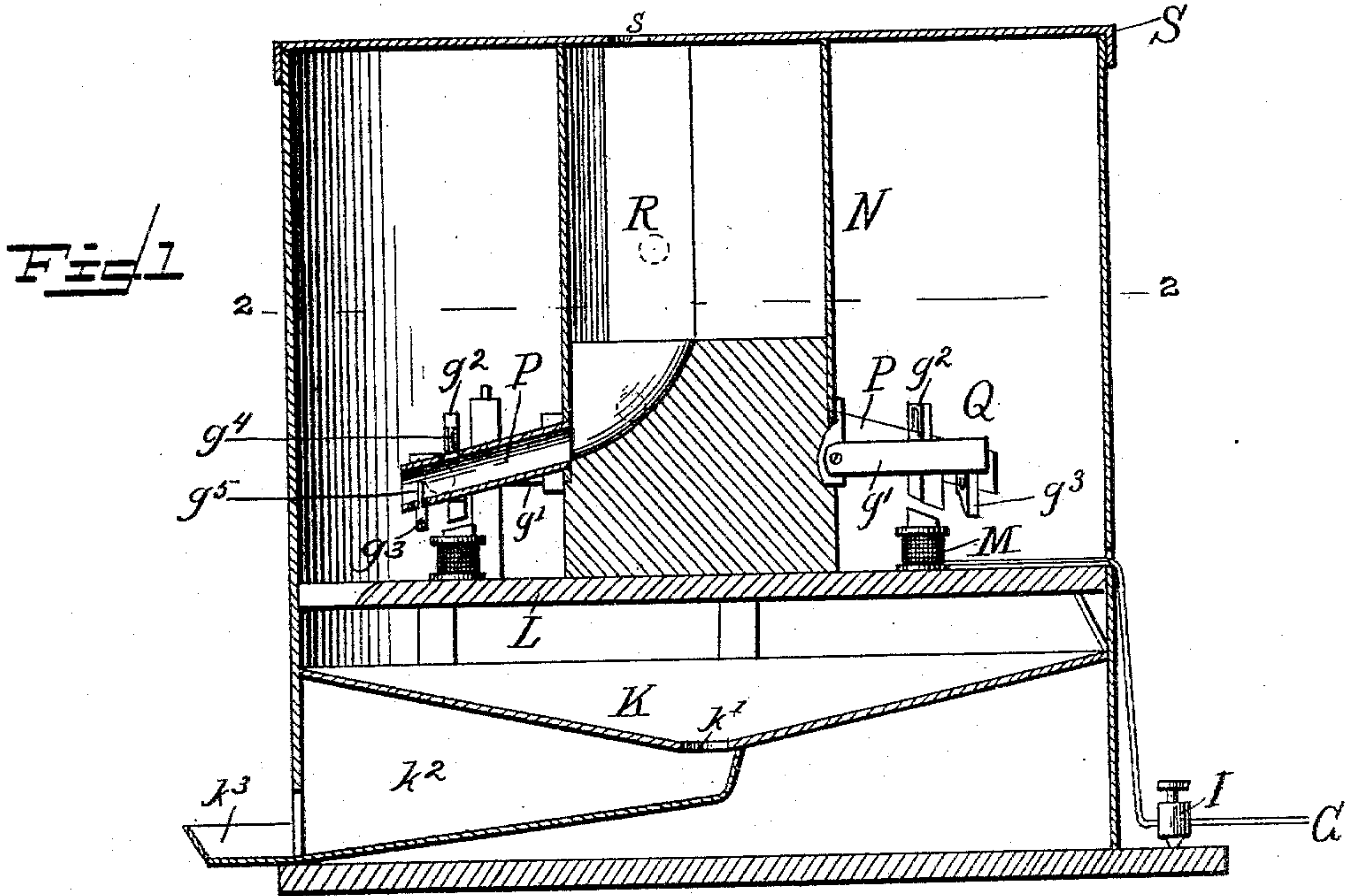
(No Model.)

2 Sheets—Sheet 1.

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TARGET.

No. 597,795.

Patented Jan. 25, 1898.



WITNESSES:

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TARGET.

SPECIFICATION forming part of Letters Patent No. 597,795, dated January 25, 1898.

Application filed March 15, 1897. Serial No. 627,461. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WRENCH, a citizen of the United States, and a resident of Metuchen, county of Middlesex, and State of New Jersey, have invented certain new and useful Improvements in Targets, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters and numerals of reference indicate corresponding parts.

This invention relates to targets, and has for its object to provide a simple and improved electric target which will automatically operate to instantly indicate the score at any desired point away from the target proper.

In the drawings, Figure 1 is a vertical sectional view of the indicating mechanism. Fig. 2 is a horizontal sectional view taken on the line 2 2, Fig. 1. Fig. 3 is a face view of the target proper. Fig. 4 is a rear elevation of the base or backboard of the target proper. Fig. 5 is a detail transverse sectional view taken through the target proper. Fig. 6 is a detail perspective view of one of the valved armatures comprised in the indicating mechanism.

Referring to the drawings, A designates the target proper, which comprises a base or backboard B and a series of independently-movable annular rings or sections C, which are preferably of varying diameters and arranged one within the other, so that they collectively form a complete target-face.

The set of rings C are carried upon and project from the face of the base B, as shown in Fig. 5, and they are preferably, respectively, provided with a concaved or grooved face *c*, which insures a more accurate and definite operation from the impact of the shot. These grooves may be of V shape, as shown, and preferably extend the entire width of the face of each respective ring or section C.

Each independent ring or section C of the set collectively forming the face of the target is mounted upon a set of rearwardly-projecting carrying arms or stems D, which respectively operate through slots or openings *b* in the base B, and between the front face of the base or backing and the rear side of the rings or sections coiled springs E are mounted upon each stem D, which springs receive the im-

pact in the operation of the sections C and also serve to return the latter to normal projecting position.

The stems D are provided with limiting stops or shoulders *d* at their inner ends in rear of the base or backing B.

The sections C are preferably provided with four or more carrying-stems D, arranged equidistant, as shown in Fig. 4, so that the operation of at least one of the stems will be insured when the target-section C receives the impact of the shot at one side or at any point.

Upon the rear side of the base or backboard B are arranged a series of contact-plates F, one contact being provided for each stem D and all the contacts being relatively connected by wires and comprised in an electric circuit.

An independent line-wire G connects each set of contact-plates F comprised in the series of four or more arranged with respect to the set of stems of each independent target-section C, as shown in Fig. 4, and extends to a binding-post H upon the base or backboard B.

Preferably the separate independently-operating rings or sections C of the spring-controlled target-face may be further divided into independently-operating segmental sections, or any other desired division of the target-face into independently-operating sections or members may be made, the same general relative arrangement of the stems and their respective contact-plate and independent line-wires for each independently-operating section being observed.

The automatic electrically-operated indicating mechanism may be arranged at any desired point away from the target—for instance, at the point at which the marksman is stationed—and the line-wires G extend from the binding-posts H at the target proper to respective binding-posts I upon the indicating mechanism.

The indicating mechanism preferably comprises a casing K, having a convergent bottom *k*, provided with a central orifice or opening *k'*, below which is formed an inclined guide-channel *k''*, extending to a trough or receptacle *k'''* at the outside of the casing. Within the casing, at a suitable point above the convergent bottom *k*, is supported a base

or bottom L, carrying a series of magnets M, (one for each independently-operating section of the target-face,) which are respectively connected to the independent line-wires G, extending from the binding-posts I, as shown in Figs. 1 and 2. Centrally from the base L rises a reservoir N, divided by vertical partitions n into a series of independent compartments O, one compartment being provided for each independent operating-section of the target-face. From the bottom of each compartment O extends a guide-channel o , leading to a laterally-projecting inclined tube P, beneath the outer end of which is provided an opening l in the base L, through which indicating-balls may drop into the convergent bottom k and from thence pass into the outside trough or receptacle k^3 . At each projecting tube P, which are arranged over the respective magnets M, I provide a hinged or pivoted armature Q. These armatures are normally withheld from contact with their respective magnets M by means of a suitably-arranged spring. The armatures preferably comprise side arms q' q'' , hinged or pivotally mounted at their inner ends and connected by cross-pieces q^2 and q^3 , respectively arranged above and below the projecting tube P, the top cross-piece q^2 being a short distance in rear of the front bottom cross-piece q^3 . The cross-pieces q^2 and q^3 respectively carry fingers q^4 and q^5 , which project inwardly through slots p in the tubes P. In this relative construction and arrangement the armature forms a valve in the tube P, the automatic feed of the indicating-balls being such that one ball will normally rest in the space in the tube P between the front bottom valve-finger q^5 , which is then in projecting position, and the rear top valve-finger q^4 , which is then in raised position. Thus when the magnet is energized and the armature drawn downwardly the front bottom valve-finger q^5 is withdrawn from the tube P and said indicating-ball is permitted to drop through the opening l to the convergent bottom k and passes to the trough or receptacle k^3 , while at the same time the rear top valve-finger q^4 is carried into the tube P and prevents further egress of the indicating-balls during their downward gravity feed. When the magnet returns to normal position, the first ball in the tube P will be released by the upward movement of the valve-finger q^4 and will then rest in position against the front bottom valve-finger q^5 ready for the next operation of the armature.

The casing K is preferably provided with a top S, in which are formed openings s , through which the indicating-balls may be fed to their respective compartments O.

For convenience in indicating the different independently-operating members and magnets I have numbered the independently-operating annular target-sections C, as shown in the drawings, with the numerals 1 to 5, inclusive.

The respective sets of contact-plates F are likewise correspondingly numbered, as are the five independent line-wires G, the five independent magnets M, the five separate compartments O, and the five distinct sets of indicating-balls R.

The main wires forming the electrical circuit are numbered 6 for purposes of convenience in following their connections.

The operation and advantages of my invention will be readily understood.

When the shot strikes a section of the target-face—for instance, the section numbered 2—the latter is forced rearwardly, so that one or more of its projecting stems D contacts with one or more of the contact-plates F comprised in the series numbered 2. This throws the series 2 into circuit, so that the current through the wire number 2 energizes the magnet numbered 2, and the armature of the latter is operated to permit one of the balls numbered 2 to drop and pass into the receptacle k^3 . The score upon the target is thus instantly indicated at any desired point or at any distance separated from the target proper.

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

1. In an improved target, a series of independently-operating segmental sections collectively forming the target-face and respectively comprised in an electric circuit, said sections being adapted to be operated by the impact of the ball to close said circuit and each section having an annular concave groove in the face thereof, in combination with registering means or devices operated by said electric circuit, substantially as shown and described.

2. An improved target, comprising independently-operating sections collectively forming the face of the target and respectively comprised in electric circuit, said sections being adapted to be operated by the impact of the ball to close the circuit, contact devices between the independently-operating target-sections and the line-wires of their respective circuits, and indicating mechanism embodying magnets and armatures comprised in said respective circuits and a series of independent compartments containing indicating balls or devices, the armatures carrying valves operating to release said indicating-balls when the armature is actuated, substantially as set forth.

3. In an electric target mechanism, the indicating mechanism, comprising a tube through which an indicating ball or device is adapted to pass, in combination with a pivoted or hinged armature, mounted with relation to said tube and carrying the top and bottom valve-fingers operating within the tube and arranged one in rear of the other, and an actuating-magnet comprised in an electric circuit, substantially as and for the purpose set forth.

4. In an electric target mechanism, the in-

dicating mechanism, comprising a reservoir divided into separate compartments, guide tubes or channels extending from said respective compartments, armatures mounted with
5 relation to said tubes and carrying valve devices operating in connection with the latter to control the passage of indicating balls or devices, and magnets governing the operation of said armatures and respectively comprised in electric circuits, substantially as and
10 for the purpose set forth.

5. An improved target, comprising independently - operating sections collectively

forming the face of the target, the face of each section having an annular concave groove 15 therein and each section being in independent electrical connection with indicating mechanism, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 11th day of March, 20 1897.

THOMAS WRENCH.

Witnesses:

RIALTO O. ARNOLD,
WILLIAM H. SMITH.