No. 804,712. PATENTED NOV. 14, 1905.

M. ST. C. ELLIS.

SELF REGISTERING TARGET.

APPLICATION FILED DEC. 6, 1904.

Fig. 1.

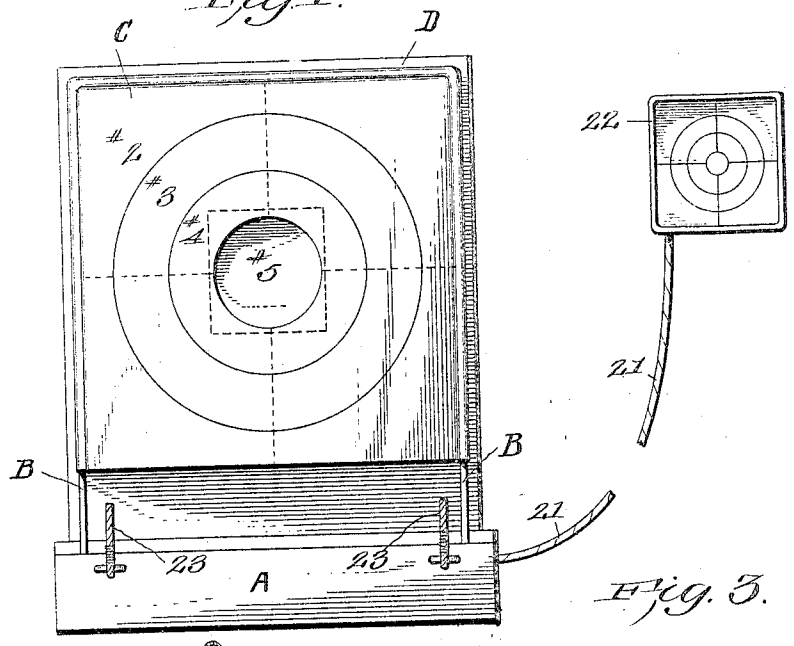


Fig. 2.

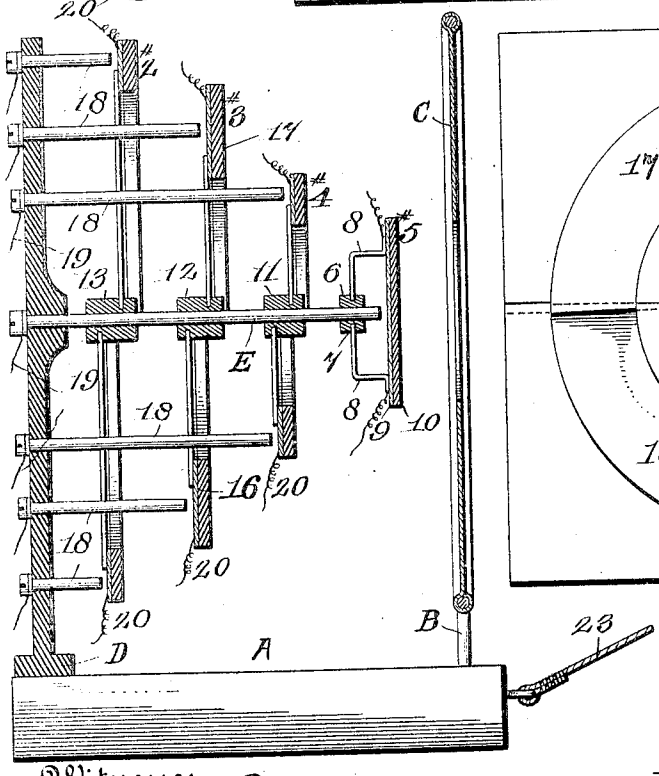
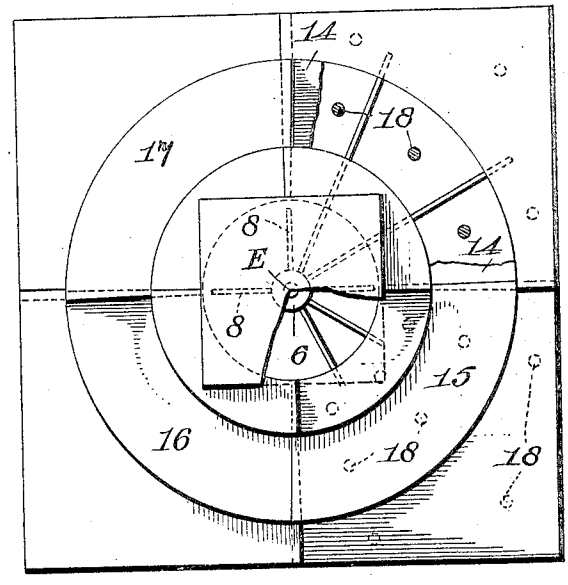


Fig. 3.



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UNITED STATES PATENT OFFICE.

MARK ST. CLAIR ELLIS, OF THE UNITED STATES NAVY.

SELF-REGISTERING TARGET.

No. 804,712. Specification of Letters Patent. Patented Nov. 14, 1905.

Application filed December 6, 1904. Serial No. 235,717.

To all whom it may concern:

Be it known that I, MARK ST. CLAIR ELLIS, a citizen of the United States, lieutenant of the United States Navy, stationed on board United States Steamship *Nevada*, have invented certain new and useful Improvements in Self-Registering Targets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to targets, more particularly to self-registering targets of such construction that they may advantageously be used by war-ships; and the objects of the invention are to improve on the construction of such a target and greatly increase its efficiency of operation upon a registering device. However, the invention is not limited to use in the water only, but may be equally well used in land target-practice at either an indoor or outdoor range; and, broadly, the objects of the invention are to provide a target for use on both land and water whereby the impact of the projectile striking it will actuate an indicating or registering mechanism situated near the marksman.

The construction also embraces all the other well-known advantages of registering over non-registering targets—such as making attendance at the target unnecessary, thus obviating the risk of damage by the shots, increasing rapidity of fire, &c.—and when in use provides a device of this character well adapted to the purpose for which it is designed.

To the accomplishment of these objects and such others as may hereinafter appear, the invention comprises the novel construction and combinations of parts, which will first be described in connection with the accompanying drawings, showing the preferred embodiment thereof, and then be particularly pointed out in the claims at the close of this specification.

In the drawings, in which corresponding and like parts are indicated in all the views by the same reference characters, Figure 1 shows a front elevational view of the target with register attached. Fig. 2 shows a vertical central sectional view, and Fig. 3 shows an elevational view, partly broken away, of the mechanism for operating the register to indicate the position of the hit upon the target.

Referring to the drawings, the invention will be described with reference to a target used for practice in the navy—that is, adapted to be towed behind a war-ship or anchored at a distance therefrom. In this view of the invention, A represents a float or raft of any desirable construction which has mounted on one end a suitable frame B, on which is stretched a regulation canvas target C, such as ordinarily used in the army or navy, provided with the usual markings, as divisions formed in concentric circles, for giving value to different hits. The target C will hereinafter be called the "canvas" to distinguish it from the mechanism herein claimed as the target which takes up the impact of the hit. Conveniently situated on the float behind the canvas is mounted a suitable support D, about the dimensions of the frame B, and extending from the face of this support toward the canvas and in line with its central axis is a horizontally-arranged rod E. At intervals on this rod, which has a free end preferably entirely disconnected from the canvas, may be mounted a hub for each division or valuation of the canvas, here shown as four, which may be of any desired material. The outer hub 6 has a line of holes 7 in its periphery, in which are secured radially-extending springs 8, which may be of any desired form, so that a plate just the size of the "bull's-eye" or division No. 5, secured thereon and over the end of rod E, forming, in effect, a mushroom-shaped structure, may have a slight yielding motion under the force of a blow. This plate may be formed of wood or any other material that may be found cheap or convenient, in which case renewal would often become necessary, which, however, could be easily effected; but the preferable construction, particularly for army and navy use, is a base 9, of bullet-proof steel, and a facing 10, of some yielding material, as lead or soft rubber, to take up the impact of the bullet and insure the springs acting properly. On the two central hubs 11 and 12 of the drawings are mounted plates in a similar manner and of similar construction to that of the one just described, preferably in the form of annuli, the outside periphery of the annulus or plate on hub 11, located behind division No. 4 of the canvas, being the size of said division and also the size of the inside periphery of the annulus or plate on hub 12, located behind division No. 3 of the canvas, its outside periphery being the size of said division. On the inner hub 13 is mounted a plate in a simi-

lar manner and of similar construction to those already described and only different in its shape, which is preferably square, so as to cover the space given to division No. 2 of the canvas, having cut from its center a circular space equal in size to division No. 3 of the canvas.

For convenience and definiteness in marking the hits the bullet-catching plates above described, located behind divisions 4, 3, and 2 of the canvas, may be divided into a number of sections, each mounted on its own springs and having a yielding motion independent of its companion sections. In the drawings these plates are shown divided into quadrants, which quadrants are supported by the springs mounted in their respective hubs. The peculiar mode of mounting these individual sections is one of the particular advantages of the invention, and the object gained is that a line-shot hitting fairly between any two sections will not wedge them together. As the mounting is alike for all three of the plates behind the divisions named, a description of one will suffice. Referring, then, more particularly to division No. 3 and naming the quadrants 14, 15, 16, and 17, the holes in the hub 12 for the supporting-springs for quadrants 14 and 16 are at one end of the hub and those for the supporting-springs for quadrants 15 and 17 are at the other end of the hub—that is, alternate quadrants are mounted on the hub one row in advance of the others, or quadrants 14 and 16 lie in one plane and quadrants 15 and 17 in another, and so for any number of divisions.

Projecting from the support D is a series of rods 18, one or more terminating a short distance from the rear of each of the quadrants of each plate on rod E, so that when said plates are forced back they will abut against the ends of these rods. To each of these rods 18 is attached an electric wire 19, which together are joined with a series of wires 20 from each separate portion of each plate forming a cable 21, leading to any preferred form of indicator or register 22, here shown as a facsimile of the target in miniature, which is conveniently located with respect to the marksman.

To the float A is attached a hawser 23, which may be used to tow the target in rear of a moving vessel or to anchor the target and practice thereon when the vessel is at anchor.

The operation of the device is obvious and need only be briefly described. When a shot makes a hit and penetrates the canvas, it impinges against one of the yielding plates located therebehind, which closes the circuit normally kept open by the space between the ends of rods 18 and the yielding plates and operates the register, which is constructed to reproduce the location of the hit. The rod E acts as a circuit-closer for the plate located behind the bull's-eye.

The advantage gained by mounting the hubs 6, 11, 12, and 13, carrying the yielding plates at varying distances from the canvas, is that if a bullet strikes one of said plates so as to be deflected therefrom it will clear all the other plates and prevent an incorrect hit being registered, and, further, the electric connections will be protected from injury by such glancing shots.

It is not desired that the invention should be understood as being limited to the details of construction and arrangement of parts as herein described and illustrated, as it is manifest that numerous variations and modifications may be made in the features of construction and arrangement in the adaptation of the device to various conditions of use without departing from its scope and spirit. The right is therefore reserved to all such variations and modifications as properly fall within the scope of the invention and the terms of the following claims.

I claim—

1. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a series of plates in circuit corresponding to target-divisions mounted at intervals on said rod, one or more of said plates formed of a plurality of sections, and means in circuit against which each of said sections abut to close the circuit and operate said register when a hit is made, substantially as described.

2. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a series of plates in circuit corresponding to target-divisions mounted at intervals on said rod, one or more of said plates formed of a plurality of sections, the alternate sections of each of such plates lying in different planes, and means in circuit against which each of said sections abut to close the circuit and operate said register when a hit is made, substantially as described.

3. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a series of plates in circuit corresponding to target-divisions mounted at intervals on said rod, and means in circuit against which said plates abut to close the circuit and operate said register when a hit is made, substantially as described.

4. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a series of plates in circuit corresponding to target-divisions yieldingly mounted at intervals on

said rod, and rods in circuit projecting from said support to the rear of said plates, at least one rod for each, against which said plates abut to close the circuit and operate said register when a hit is made, substantially as described.

5. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a series of plates in circuit corresponding to target-divisions mounted at intervals on said rod having a rigid central connection therewith and body portions capable of being flexed backwardly, and means in circuit against which said plates are flexed closing the circuit and operating the register when a hit is made, substantially as described.

6. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a plurality of hubs mounted at intervals on said rod, a plurality of radially-arranged springs set in each of said hubs, a target-plate in circuit for each hub secured to the extremities of its springs, and means in circuit projecting from said support against which said plates abut to close the circuit and operate said register when a hit is made, substantially as described.

7. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a series of radially-arranged springs mounted at intervals on said rod, a series of plates in circuit corresponding to target-divisions secured to said springs, and means in circuit against which said plates abut to close the circuit and operate said register when a hit is made, substantially as described.

8. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a series of radially-arranged springs mounted at intervals on said rod, a series of plates in circuit corresponding to target-divisions secured to said springs, one or more of said plates formed of a plurality of sections, and means in circuit against which each of said sections abut to close the circuit and operate said register when a hit is made, substantially as described.

9. In a self-registering target, a normally open electric circuit carrying a suitable register, a support provided with a horizontally-disposed rod projecting therefrom, a series of radially-arranged springs mounted at intervals on said rod, a series of plates in circuit corresponding to target-divisions secured to said springs, one or more of said plates formed of a plurality of sections, the alternate sections of each of such plates lying in different planes, and means in circuit against which each of said sections abut to close the circuit and operate said register when a hit is made, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MARK ST. CLAIR ELLIS.

Witnesses:

ROBERT J. MCNALLY,

J. ALEX. HILLEARY, Jr.