

No. 858,971.

PATENTED JULY 2, 1907.

R. H. FURY.

TARGET.

APPLICATION FILED JULY 3, 1906.

2 SHEETS—SHEET 1.

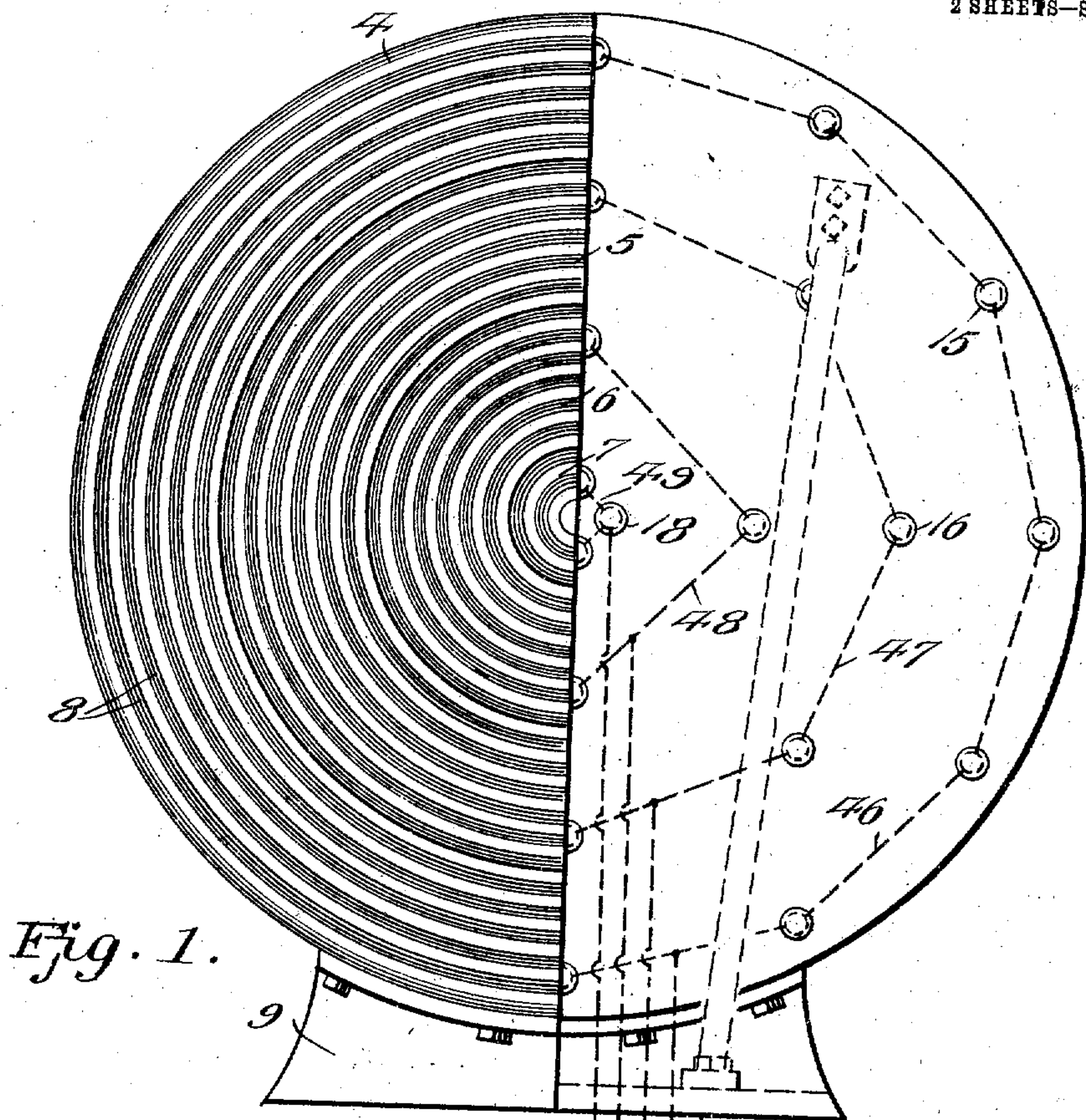


Fig. 1.

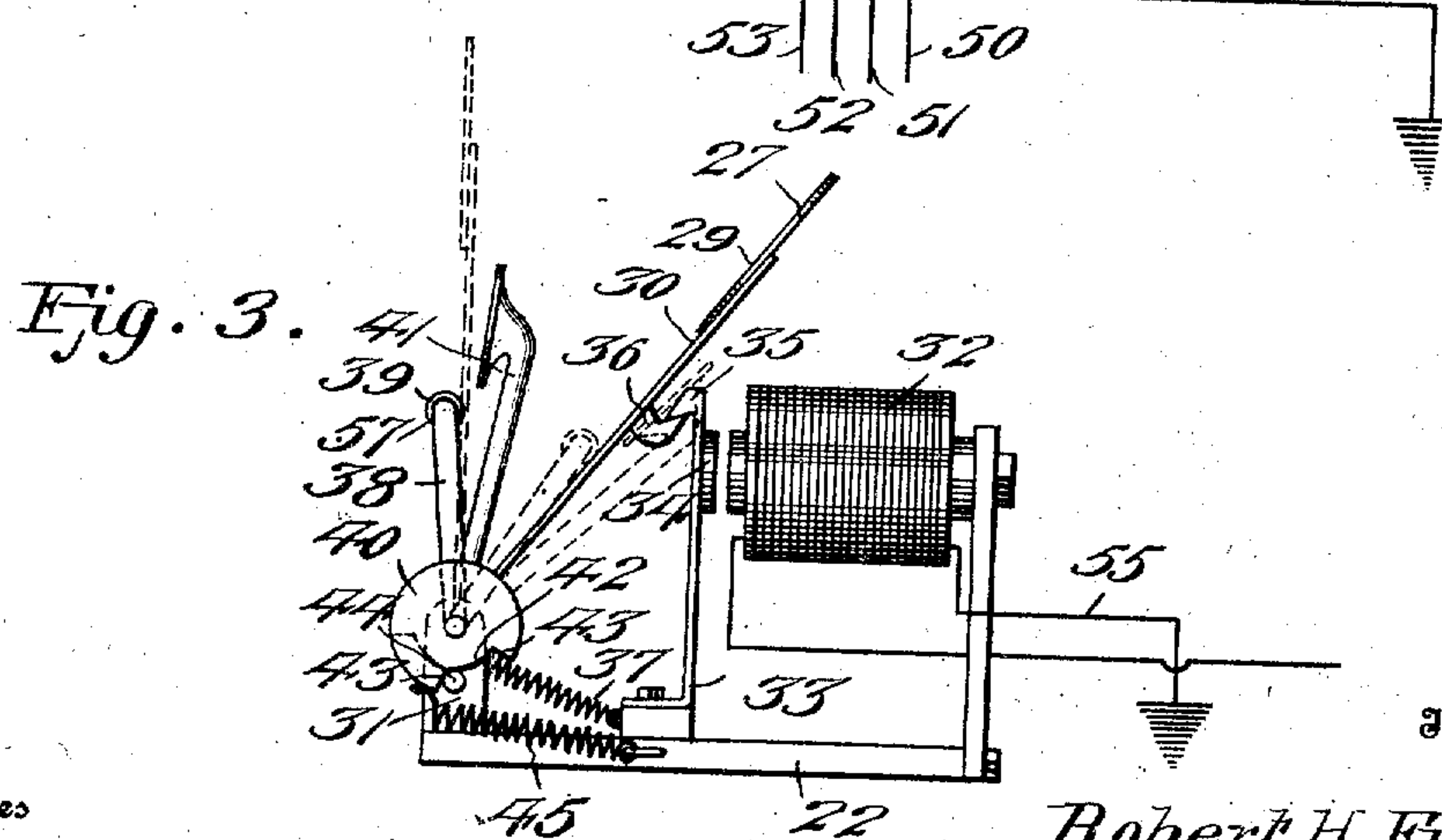


Fig. 3.

Witnesses

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2 SHEETS—SHEET 2.

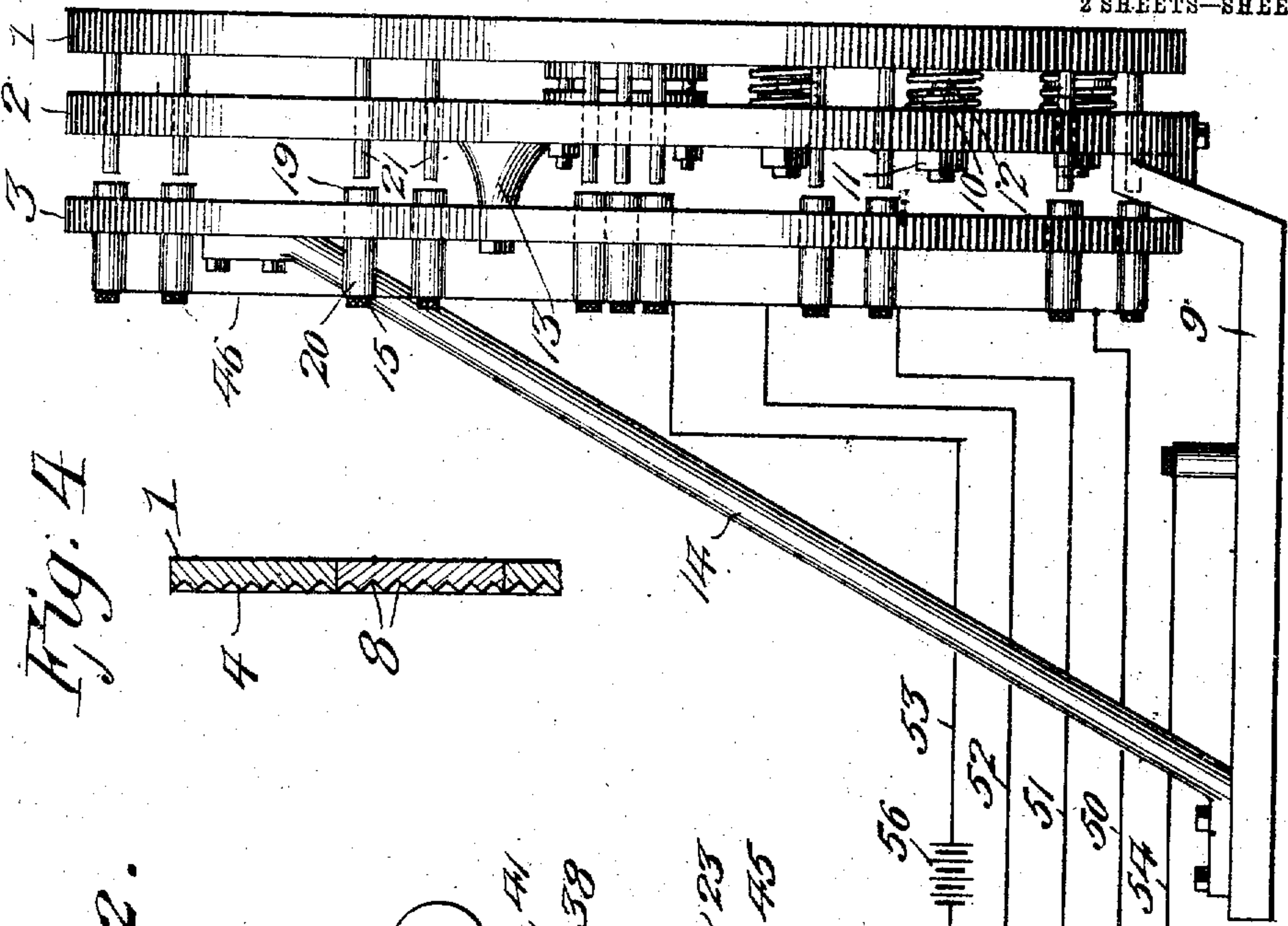
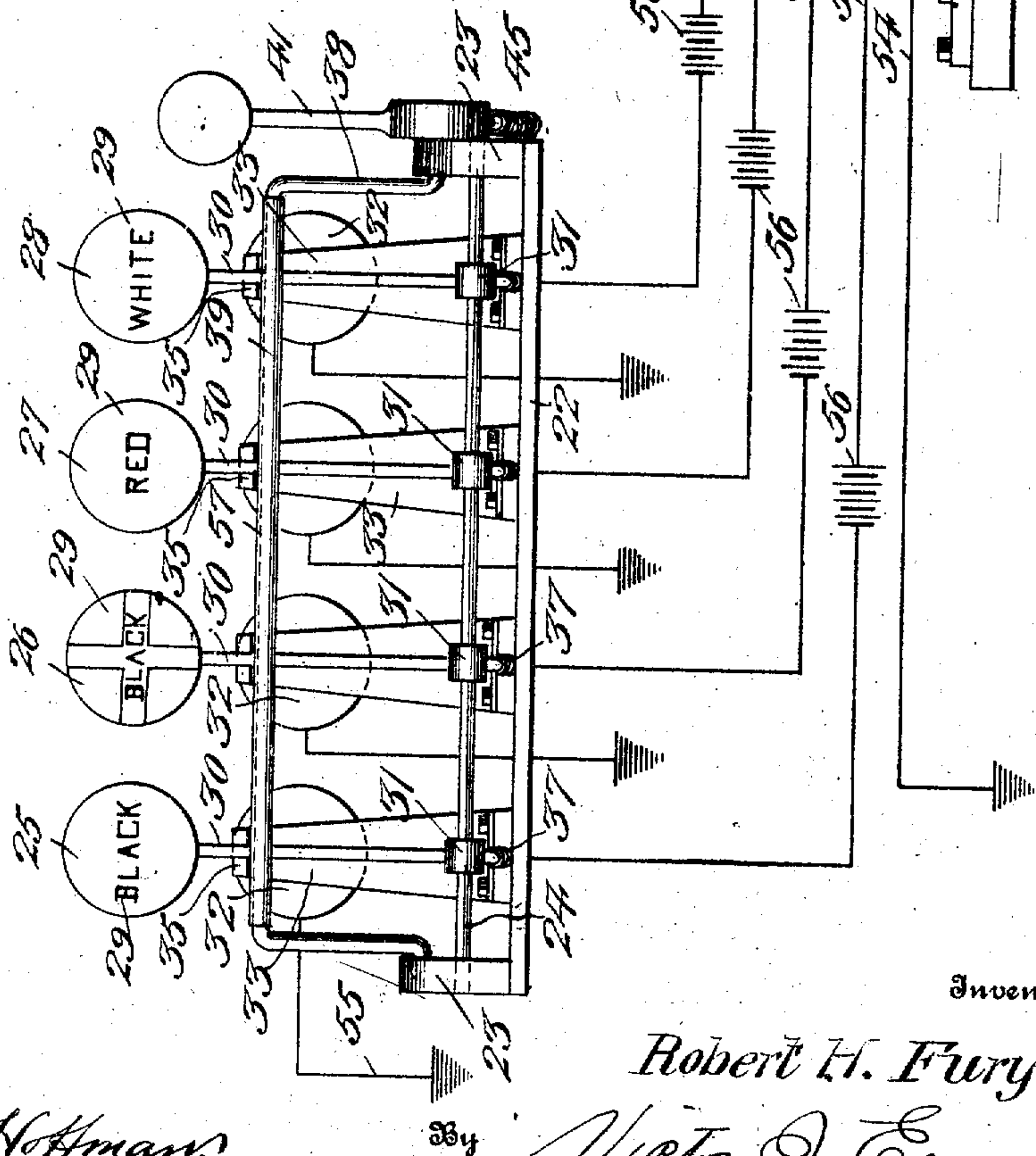


Fig. 4

Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## TARGET.

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Specification of Letters Patent.

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Application filed July 3, 1906. Serial No. 324,644.

To all whom it may concern:

Be it known that I, ROBERT H. FURY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented new and useful Improvements in Targets, of which the following is a specification.

The invention relates to an improvement in targets, and particularly to a self-indicating target wherein the bullet impact is automatically indicated at a point remote from the target.

The main object of the present invention is the production of a target constructed of independently movable sections, each adapted to be influenced by the impact of the bullet and in turn influence an indicator to automatically record the movement of the particular section.

With the above object in view, the invention consists in certain details of construction and combination of parts, which will first be described in the following specification, the essential points of novelty being pointed out in the appended claims.

The preferred details of construction of the present invention are clearly illustrated in the accompanying drawings, in two sheets, and in which:—

Figure 1 is a view in front elevation of a target constructed in accordance with my invention, a portion of the target plate and supporting plate being broken away to show the contact plate, the electrical circuits being shown in dotted lines. Fig. 2 is a view in side elevation of the target and cooperating indicator. Fig. 3 is a view in end elevation of the indicator, the set positions of the various parts being indicated in full lines and the operative positions in dotted lines. Fig. 4 is a broken sectional view of a portion of the target plate illustrating the impact surface thereof.

Referring particularly to the drawings, it will be noted that my improved self-indicating target comprises two main elements, a target proper, and an indicator, the latter being arranged to be influenced by the former through a series of electrical circuits.

The target proper comprises three plates of disk-like form, and approximately of equal diameter, a front plate 1, hereinafter termed the target-plate, an intermediate or supporting plate 2, and a rear or contact plate 3.

The target-plate 1 is made up of a plurality of independent sections 4, 5, 6, and 7, of annular form, the interior diameter of each section being approximately equal to the exterior diameter of the next smaller section. The sections are disposed concentrically to provide a plane surface, the respective sections by this arrangement corresponding to the usual target divisions. The relatively forward or impact face of each of the target sections is formed with a series of concentrically arranged V-shaped depressions 8, designed

primarily to prevent a glancing effect or deflecting of the bullet, whereby to insure proper operation of the respective section under the impact. The depression on each section adjacent the proximate edge of the adjoining section is practically coincident with said edge, whereby to avoid a plane or flat surface at the junction of the sections in order to prevent the impact of a bullet simultaneously influencing two sections.

The intermediate or supporting plate 2 is connected to a substantial base-plate 9, which latter may be formed for connection to any suitable support or to rest directly upon the ground, as preferred. The supporting plate is designed to independently and movably support the sections of the target plate, each of said sections being for this purpose provided with appropriately disposed rearwardly extending bolts 10, designed in assemblage of the parts to pass through openings formed in the supporting plate, the free ends of the bolts being provided with nuts 11 to prevent disconnection of the parts. Coil springs 12 are arranged to encircle bolts 10, bearing at their respective ends against the proximate faces of the target sections and the supporting plate, whereby to maintain the target sections at the relative forward limit of movement.

The contact plate 3 is supported in rear of the plate 2, being mounted upon a stud 13 projecting from the supporting plate and further held in applied position by a brace bar 14 connected to the contact plate and to the base plate 9, as clearly shown in Fig. 2. A plurality of series of contact posts 15, 16, 17 and 18, are mounted in the contact plate, projecting in both directions beyond the respective surfaces of the plate, as at 19 and 20. Each series of contact posts are disposed in rear of one of the target sections, whereby to provide a series of contact posts for each section, which are adapted to be influenced in the movement of that section, and which are protected against influence in the movement of any of the other sections. Each section of the target is provided with a series of contact pins 21 fixed to and projecting rearwardly from the section and slidably mounted in openings in the supporting plate. The contact pins 21 are of such length that when the target sections are in normal position, that is at the forward limit of movement under the influence of the spring 12, the free or relative rear end of said pins are spaced from the forwardly projecting ends of the contact posts mounted in the contact plate.

As above described, the target proper comprises a target plate, made up of a plurality of independent sections, a supporting plate mounted upon the base, and slidably supporting the sections of the target plate, and a contact plate fixed to the supporting plate and carrying a series of contact posts arranged in concentric rows in rear of the respective target plate sections, said sections being formed with contact pins adapted to en-



gage the contact posts corresponding to the particular sections, when the section is operated under the impact of a bullet.

An indicator is arranged for cooperation with the target, being in electrical communication therewith in a manner to be later described. The indicator comprises a series of signal disks, corresponding in number to the sections of the target-plate.

The indicator comprises a base structure 22 formed adjacent the relatively forward end of each side edge with a vertically projecting ear 23 in which ears is rotatably supported a signal shaft 24. Signals 25, 26, 27 and 28 corresponding in number to the sections of the target plate are loosely mounted on the shaft 24. Each of the signals comprises a disk 29 secured to the upper end of an arm 30, the lower end of which is fixed to a sleeve 31 loosely encircling the shaft 24, any appropriate means being provided for preventing relative longitudinal movement of the sleeve without interfering with the independent relative movement thereof. As before explained, the respective disks are adapted to correspond with the respective sections of the target plate, and for the purposes of identification are each marked or colored to correspond with the individual marking or coloring of the corresponding target-plate section.

Directly in rear of each signal, I arrange an electro-magnet 32, the armature 33 of which is in the form of a spring plate fixedly secured at its lower end to the base 22. The armature plate is provided with a contact piece 34 disposed in alinement with the core of the magnet, the normal tension of the armature plate maintaining the contact piece and magnet core slightly separated. The upper end of the armature plate is provided with a forwardly projecting hook member 35, designed to cooperate with and engage a rearwardly projecting member 36 on the signal arm 30.

The relative disposition and shape of the respective hook members 35 and 36 is such that when the target signal is in normal position, that is, inclined rearwardly from a vertical position relative to the base, said hook members will engage to secure the signals in such inclined or normal positions, the movement of the armature plates under the attractive influence of the magnet when energized, disengaging the hook members and permitting the particular signal to be moved to operative position through the medium of a spring 37 secured to a pin projecting from the sleeve 31 and to the base 22.

As a means for resetting such of the signals as may have been operated in the use of the target, I mount in the ears 23 of the base-plate an inverted U-shaped resetting bar 38, the cross-bar 39 of which is of a length to include all of the signal arms and is so spaced from the shaft 24 as to engage said arms adjacent the connection of the disks thereto. The bearing portion of the resetting bar mounted in one of the ears 23 projects beyond the relative outer face of said ear, and on said projecting end, I mount a disk 40, from the periphery of which projects a resetting arm or foot lever 41. The edge of the disk 40 is notched at 42 to provide shoulders 43 adapted in the movement of the disk to engage a pin 44 fixed to the ear 23. The shoulders 43 are so arranged as to limit the respective movements of the resetting bar, the normal or forward po-

sition of said bar being approximately vertical relative to the base, and the rear or operative position of the bar being such as to move the hook members carried by the signal arms into cooperative engagement with the hook members carried by the armature plates. The normally forward position of the resetting bar thus operates as a stop to limit the forward movement of the signal arms, thereby determining the operative position of said arms, as will be evident. The resetting bar is normally maintained in forward position through the medium of coil spring 45 secured to the periphery of the disk 40 and to the edge of the base 22.

To provide for electrically influencing the particular signal upon the movement of a target section, I connect the respective series of contact pins by conductors 46, 47, 48 and 49, respectively, leading from said conductors line wires 50, 51, 52 and 53, which extend to the electro-magnets 32 of the signals 25, 26, 27, and 28, respectively. The contact posts are insulated from the contact plate 3, and the latter is insulated from the supporting plate 2. The base plate 9 of the target is suitably grounded to a conductor 54, and each of the electro-magnets are also grounded to a conductor 55. The contact pins 21 normally engage the supporting plate 2, so that a series of circuits are provided broken only in the normal spacing between the contact pins and forwardly projecting sections 19 of the contact posts. Each of the circuits will, of course, include a source of energy, as a battery 56, and while preferring the use of the grounded circuits described, it is apparent that the full metallic circuits may be used with equal efficiency.

Assuming the parts constructed and arranged as described, with the indicator located adjacent the marksman or inspector, the operation of my self-indicating target is as follows: The bullet impact causes the particular section to move inward with the effect to move the pins 21 carried by that section into contact with the contact posts of the series corresponding to the section. This contact closes the circuit, energizes the particular electro-magnet and attracts the armature plate thereof. The movement of the armature plate releases the particular signal, permitting the same to be projected into operative position, thereby notifying the marksman or inspector that the section of the target corresponding to the signal operated has been struck by the bullet. The manual operation of the lever 41 operates to reset the signal arm as desired.

In order to avoid destructive impact of the signal arms and the resetting bar 39, in the movement of said arms to operative position, I prefer to envelop the cross-bar of the resetting arm in a resilient covering, such as a soft rubber tube 57.

In the use of the self-indicating signal target, the results of the marksman's efforts are readily and instantly determined through the automatic operation described, enabling the scores to be given immediately upon the determination of any particular effort, without the usual incidental delays. Furthermore, as the connection between the target proper and the indicator consists simply in the conducting wires, it is apparent that the indicator may be located at any distance from the target, thereby dispensing with the target housings and pits ordinarily used for the target tender and signalman.



While preferring the specific details of structure shown and described, it is to be understood that I do not limit myself thereto, as various modifications, within the scope of the appended claims, may be resorted to without varying the principles of the present invention.

In connection with the modifications above referred to I particularly contemplate as within the spirit and scope of the present invention, the combining of the supporting plate and contact plate into a single disk or plate, in which event, of course, contact posts will be carried by said plate, and the contact pins of the target plate will project from the sections of said plate only a sufficient length to engage the contact posts.

Having thus described the invention what is claimed as new, is:—

1. A target including a series of concentrically disposed sections having their impact faces arranged in alinement, the impact face of each section being formed with a series of concentrically arranged V-shaped depressions, the wall of the depression adjacent the edge of a section coinciding with said edge, whereby to prevent the bullet impact from influencing two sections at one time.

2. The combination with a target comprising independently movable sections, of an indicator for said target, said indicator comprising a base, a series of electro-magnets corresponding in number to the number of target sections supported on the base, a shaft mounted in the base in advance of the electro-magnets, a series of signals corresponding in number to the target sections independently mounted on said shaft and arranged respectively in ad-

vance of one of the electro-magnets, a locking means influenced by the electro-magnet for normally holding the targets in a position inclined from the vertical, means carried by the target and sections for closing the respective electro-magnet circuits, and a spring connected to each signal and arranged to project the signal into vertical position upon the influence of the locking means by the electro-magnet.

3. The combination with a target comprising independently movable sections, of an indicator for said target, said indicator comprising a base, a series of electro-magnets corresponding in number to the number of target sections supported on the base, a shaft mounted in the base in advance of the electro-magnets, a series of signals corresponding in number to the target sections independently mounted on said shaft and arranged respectively in advance of one of the electro-magnets, a locking means influenced by the electro-magnet for normally holding the targets in a position inclined from the vertical, means carried by the target and sections for closing the respective electro-magnet circuits, and a spring connected to each signal and arranged to project the signal into vertical position upon the influence of the locking means by the electro-magnet, a single resetting bar supported in the base and lying in advance and arranged for cooperation with all of the signals, a lever for operating said bar, and means for limiting the movement of the lever in both directions, whereby the resetting bar is normally disposed to provide a stop for the operative movement of the signals.

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

ROBERT H. FURY.

Witnesses:

LEVY J. FULD,  
S. T. K. SUMMERS.