No. 727,235. PATENTED MAY 5, 1903.

E. G. WALLACE.

COMBINED INDICATOR AND RECORDER FOR MARKSMEN.

APPLICATION FILED AUG. 12, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

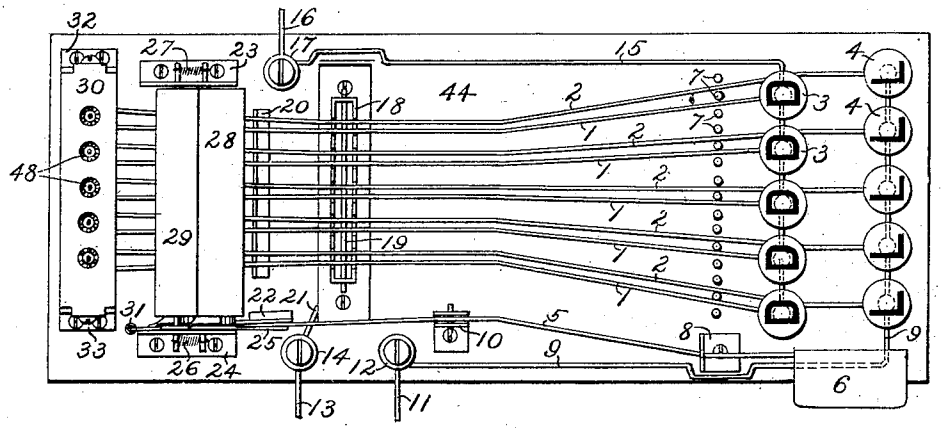


Fig. 1.

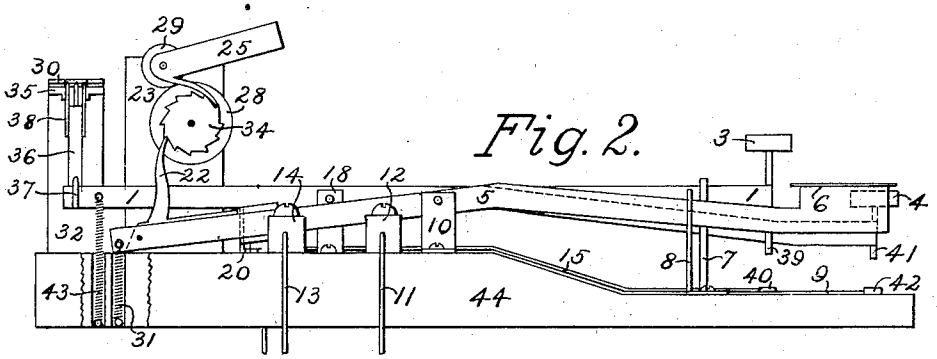


Fig. 2.

Fig. 3.

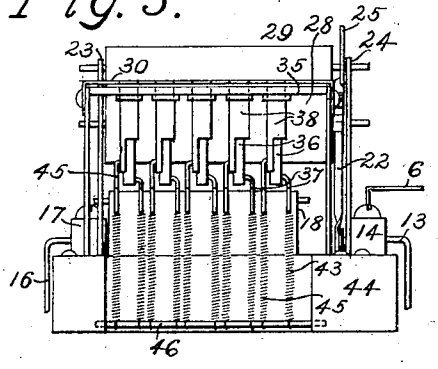


Fig. 4.

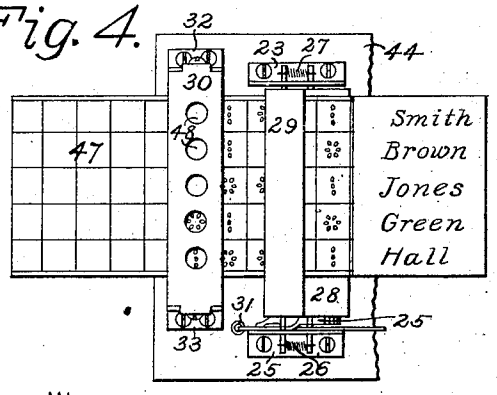


Fig. 5.

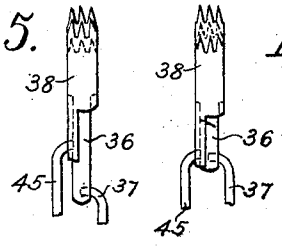


Fig. 6.

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COMBINED INDICATOR AND RECORDER FOR MARKSMEN.

APPLICATION FILED AUG. 12, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 7.

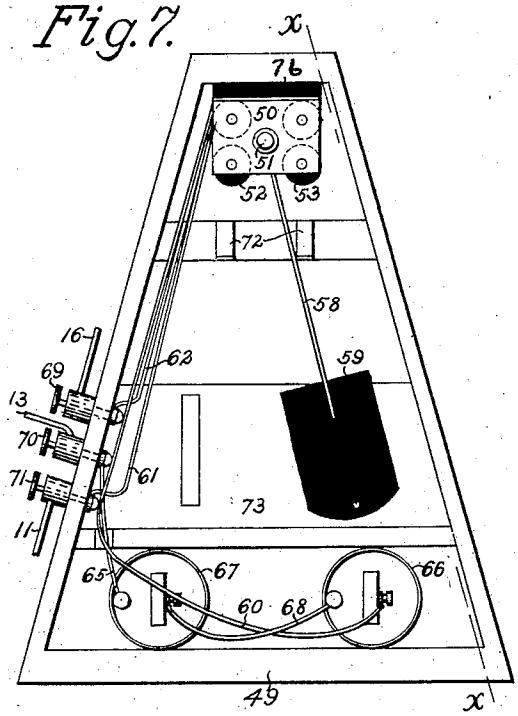


Fig. 8.

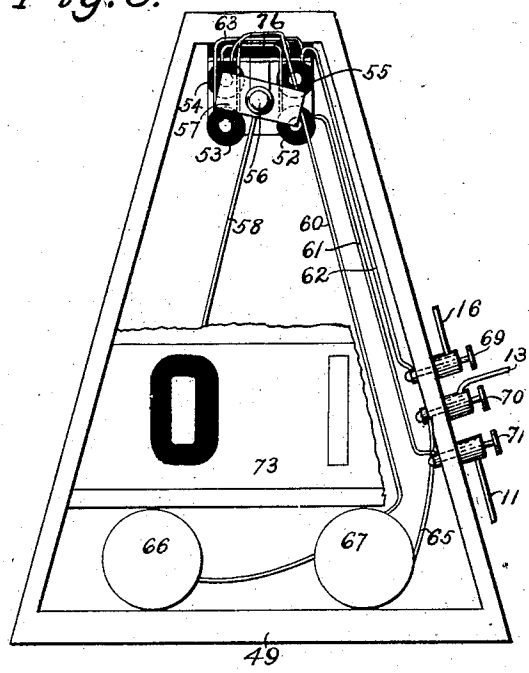
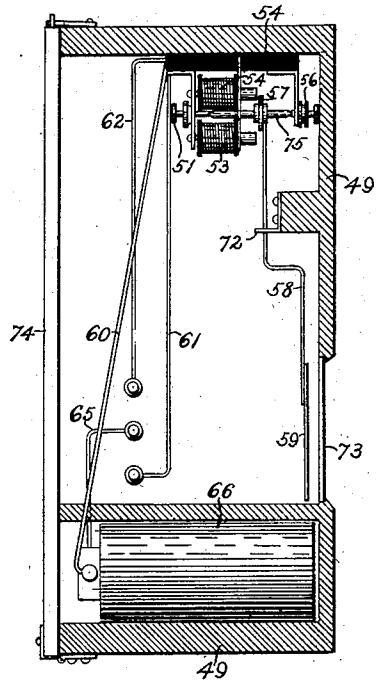


Fig. 9.



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No. 727,235. Patented May 5, 1903.

UNITED STATES PATENT OFFICE.

EDWIN G. WALLACE, OF MARSHALLTOWN, IOWA.

COMBINED INDICATOR AND RECORDER FOR MARKSMEN.

SPECIFICATION forming part of Letters Patent No. 727,235, dated May 5, 1903.

Application filed August 12, 1902. Serial No. 119,366. (No model.)

To all whom it may concern:

Be it known that I, EDWIN G. WALLACE, a citizen of the United States of America, and a resident of Marshalltown, Marshall county, Iowa, have invented certain new and useful Improvements in a Combined Indicator and Recorder for Marksmen, of which the following is a specification.

My invention relates to scoring-machines for the use of marksmen at shooting-matches; and the object of my invention is to provide an apparatus by which a record may be punctured upon a score-card and simultaneously display the registration upon a dial-plate placed at a distance. I attain this object by the means which are illustrated in the accompanying drawings, and in which—

Figure 1 is a plan view of the record-puncturing device. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation of the same. Fig. 4 is a detail of the plan view of the puncturing device, showing the manner of placing the score-card therein. Figs. 5 and 6 are detail views of the dentated dies. Fig. 7 is a rear elevation of the dial scoring device. Fig. 8 is a front elevation of the same with parts removed to show the interior construction, and Fig. 9 is a view of the same device as seen from the side and on a section as shown by the lines x x in Fig. 7.

Similar numbers refer to similar parts throughout the several views.

That part of my apparatus whose function is to enter a punctured record upon a score-card is constructed as follows: A series of levers 1 are pivoted upon a fulcrum-pin 19, the latter being pivoted within bearing 18. The short ends of said levers 1 are connected to tension-springs 43, the lower ends of said springs being connected to a cross-bar 46, fixed within a slot in the base-piece 44. The levers 2 are similarly fulcrumed, and their short ends are similarly connected to tension-springs 45. A stop-piece 20, placed underneath the short ends of all the levers, limits the downward movement. Pins 7 prevent any sidewise movement of the longer arms of the levers. The longer arms of the levers 1 are shorter than the longer arms of the levers 2, and said levers are respectively provided with finger-pieces 3 and 4. The short arms of the levers 1 have hooked pins attached, the latter being set pivotally into the lower parts of the slide-bars 36. The short arms of the levers 2 are similarly provided with hooked pins 45, which are set pivotally within the lower ends of the slide-sleeves 38. The upper end of the slide-bar 36 is flattened and provided with a number of detents set in a straight line. Said slide-bar 36 is movable vertically within the hole of the cylindrical slide-sleeve 38. The said slide-sleeve 38 is slidable vertically over the slide-bars 36. Uprights 32 and 33 support the horizontal parallel plates 30 and 35. The plates 30 and 35 are set a short distance above each other, so that a score-card may be introduced between them, and are pierced with coincident apertures 48 to permit of the movement vertically through said apertures of the slide-sleeves 38 and the slide-bars 36. Friction-rollers 28 and 29 are pivotally mounted within the upper parts of the uprights 23 and 24. These rollers are set parallel and at about the same level with the horizontal plates 30 and 35 and at such a distance from the latter that when a score-card has been passed between said plates it then readily passes between the friction-rollers. The lowermost roller is provided with a ratchet 34, and a pawl 25 is pivotally mounted upon the spindle of the roller 29, said pawl engaging the teeth of said ratchet. Said rollers are rotated by means of a pawl 22, set underneath and engaging the teeth of said ratchet. The pawl 22 extends upward from a weighted lever, the latter being pivoted at its end to the end of the short arm of the shifting-lever 5. The lever 5 is pivoted within the box 10, and its short arm is kept under a downward tension by means of a spring 31. The longer arm of the lever 5 is movable vertically within a slotted upright 8 and is provided with a thumb-piece 6. Tension-springs 26 and 27 keep the rollers 28 and 29 in contact. Studs 39 and 41 are attached to the ends of the long arms of the levers 1 and 2, respectively, so arranged that when said levers are depressed the studs will contact with the contact-pieces 40 and 42, respectively. A conductor 9 connects all the contact-pieces 42 with the conducting-wire 11 by means of the binding-post 12. A conductor 15 connects all of the contact-pieces 40 with the conducting-wire 16 by means of the bind-

ing-post 17. A short conducting-wire 21 contacts with the base-plate 18 and with the conducting-wire 13 through the binding-post 14.

That part of my apparatus by which a simultaneous or a duplicate registration is made is thus described: A case 49, having two interior compartments, is furnished with a dial-plate 73, provided with the transparent numerals "1" and "0." This case may be provided with a drop-cover 74, if desired. Any sufficient number of dry-cell storage batteries, such as 66 and 67, are placed within the lower compartment of said case. A block of insulating material 76 is attached to the lower side of the upper part of the upper compartment and supports a depending plate 50. Solenoid-electromagnets 52, 53, 54, and 55 are fastened to the plate 50. A hanger projects downward from the anterior part of the insulating-block 76 and supports an adjusting thumb-screw 56, whose inner end projects through said hanger and is provided with a conoidal-shaped cavity. An adjusting thumb-screw 51 is set within the depending plate 50 at a point intermediate between the four solenoid-magnets in the same plane with but in a reverse position to the thumb-screw 56. The inner end of the adjusting-screw 51, which passes through the depending plate 50, is also provided with a conoidal-shaped cavity. These conoidal-shaped cavities afford bearings for the conical ends of the horizontal shaft 75. This shaft supports an armature 57 and also a pendulum 58, whose face 59 is colored to strongly contrast with the color of the dial-plate 73. The storage-battery cells 66 and 67 are electrically connected with the four solenoid-magnets by means of the conducting-wire 60. By means of the wires 63 and 64, respectively, the solenoids are formed into two couples 53 and 55 and 52 and 54, respectively. The couple 52 and 54 are placed in circuit with the contact-pieces 42 on the puncturing registration device by means of the wires 61, 11, and 9. The couple 53 and 55 are placed in electrical circuit with the contact-pieces 40 by means of the wires 62, 16, and 15. Stops 72 limit the sidewise movement of the pendulum-rods 58. The electrical circuit from the storage-battery cells 66 and 67 to the contact-studs 39 and 41, respectively, is completed through the wires 68, 65, 13, and 21, the bearing-plate 18, and the levers 1 and 2, respectively.

The operation of my improved scoring-machine is thus described: The names of the competing marksmen being inscribed upon one end of a properly-ruled score-card, said score-card is inserted between the horizontal plates 30 and 35 and the friction-rollers 28 and 29, as is indicated in Fig. 4. As the marksmen shoot in succession the result of their efforts is registered upon the score-cards by means of punctured characters in the spaces set opposite each name. The character "1," indicating a hit, is punctured through the card as a result of the vertical movement upward of the slide-bar 36, carrying the straight line of detents. This vertical movement of the slide-bar 36 is imparted by means of the downward movement of the long arm of the lever 1, which carries a finger-piece bearing the character "D," being the initial of the word "dead." The punctured character "O" is produced in a like manner by means of the depression of the finger-piece 4 on the lever 2 elevating the slide-sleeve 38 with its circular row of detents. When the record of one series of shots has been punctured upon the score-card, the score-card is drawn forward one space by a partial rotation of the friction-rollers 28 and 29 through the action of the pawl 22 upon the ratchet 34, caused by the depression of the thumb-piece 6 on the long arm of the lever 5. In order that the result of each shot may be clearly divulged to the spectators and also to furnish a safeguard against incorrect scoring, I have provided an auxiliary device to be operated simultaneously with and by the puncturing registration. When a "D" key is depressed, its stud 39 contacts with the piece 40, establishing an electric circuit with the storage-battery cells 66 and 67, thereby energizing the solenoid-magnets 53 and 55, drawing the armature 57 into a position where the depending pendulum 58 will be swung sidewise, so that its colored face 59 will show through the transparent figure 1 and by means of the contrasting color render that figure distinctly visible at a distance. In like manner when the key L is depressed a stud 41 contacts with the piece 42, and an electrical circuit is established to the solenoid-magnets 52 and 54, drawing the armature 57 into a position where its pendulum-face 59 will display through the dial-plate character "O." The case 49 is designed to be set at such a distance from the scorer as to permit of the characters on the dial-plate 73 to be distinctly visible to spectators. The use of the dial-plate indicating device is therefore a necessary means for the detection of errors made by the scorer.

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

1. An indicator and register for marksmen, consisting of a score-card, series of dentated dies adapted to puncture said score-card, one of said series being mounted upon cylinders slidable over shafts upon which the other series of dies are mounted, levers for actuating said dies, contact-pieces on said levers, in combination with two pairs of electromagnets, an armature pivotally mounted over said magnets, a pendulum attached to said armature, a dial-plate over said pendulum, a source of electrical power in circuit with said electromagnet and said levers, and suitable electrical connections, terminals, and supports, substantially as shown and described.

2. An indicator and register for marksmen, consisting of a score-card, series of vertically-

movable dentated dies adapted to puncture said score-card, one of said series being mounted upon cylinders slidable about shafts upon which the other series of dies are mounted, levers for actuating said dies, tension-springs for said levers, in combination with two pairs of electromagnets, an armature pivotally mounted over said magnets, and adapted to be attracted by each series of magnets alternately, a pendulum suspended from said armature, a dial-plate over said pendulum, stops for said pendulum, a source of electrical power in circuit with said electromagnet and said levers, and suitable electrical connections, terminals and supports, substantially as shown and described.

3. An indicator and register for marksmen, consisting of a score-card, series of vertically-movable dentated dies adapted to puncture said score-card, one of said series being mounted upon cylinders slidable about shafts upon which the other series of dies are mounted, levers for actuating said dies, tension-springs and a stop for said levers, friction-rollers provided with ratchets, pawls and levers for moving said score-card, in combination with two pairs of electromagnets, an armature pivotally mounted over said magnets and adapted to be attracted by each series of magnets alternately, a pendulum suspended from said armature, a dial-plate over said pendulum, stops for said pendulum, a source of electrical power in circuit with said electromagnet and said levers, and suitable electrical connections, terminals and supports, substantially as shown and described.

Signed at Marshalltown, Iowa, this 9th day of August, 1902.

EDWIN G. WALLACE.

Witnesses:

MAHLOR RUSSELL,

CHAS. E. OLSON.