C. F. WHITE.

TIMING DEVICE.

APPLICATION FILED JAN. 14, 1910.

1,018,799.

Patented Feb. 27, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

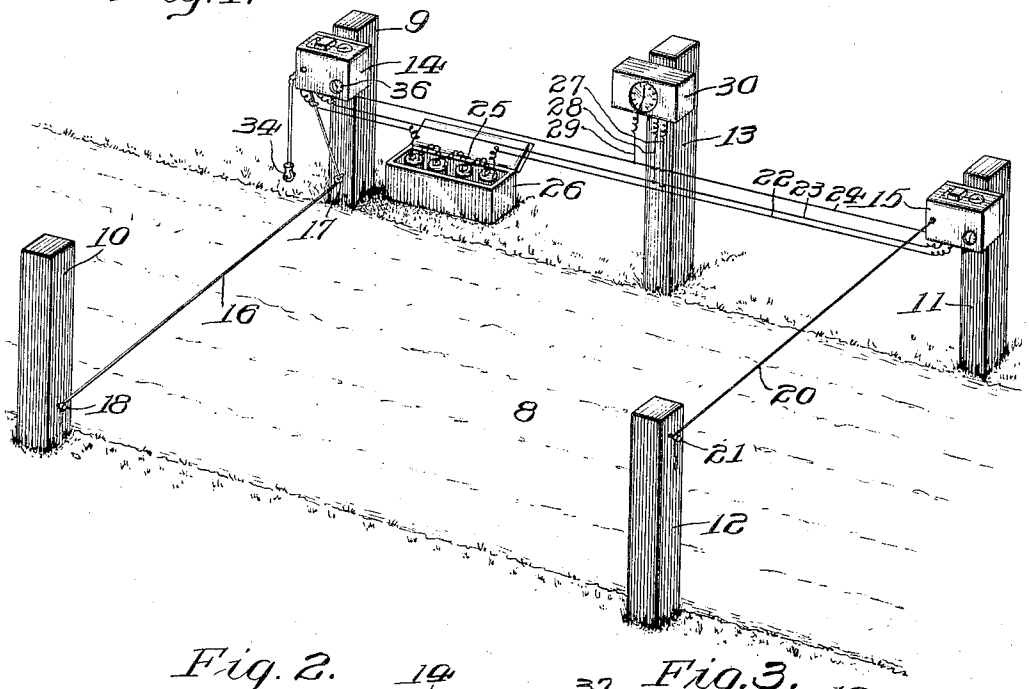


Fig. 2.

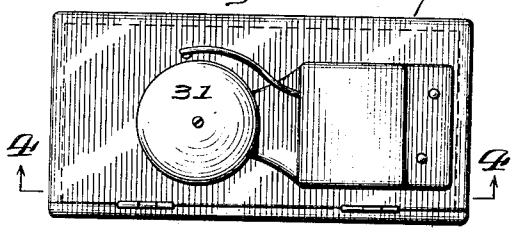


Fig. 3.

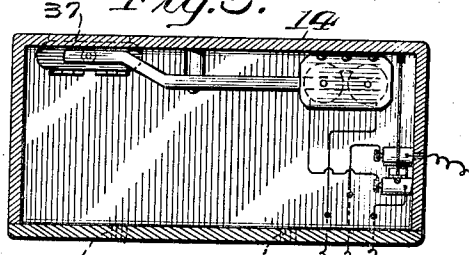
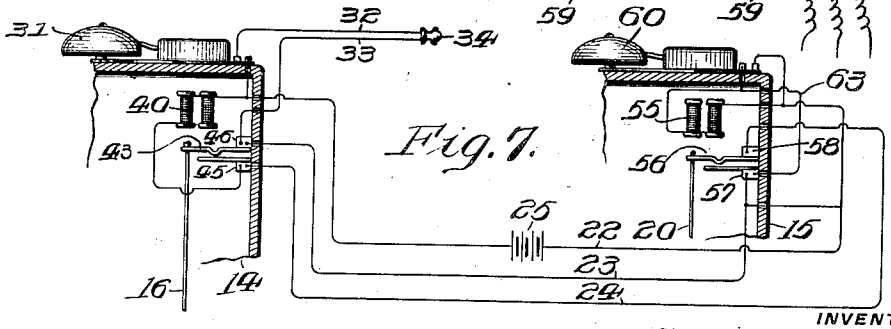


Fig. 7.



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2 SHEETS—SHEET 2.

Fig. 4

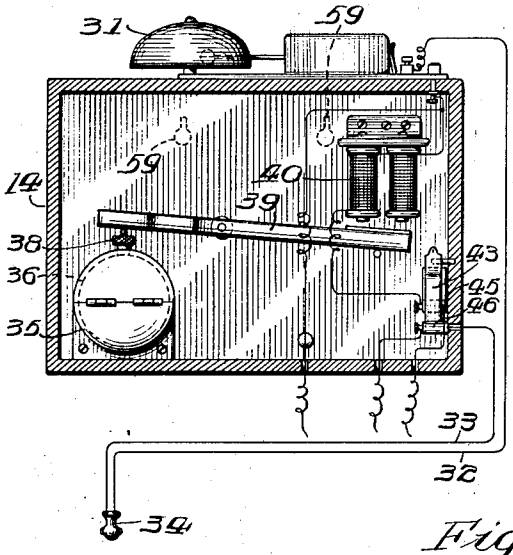


Fig. 5.

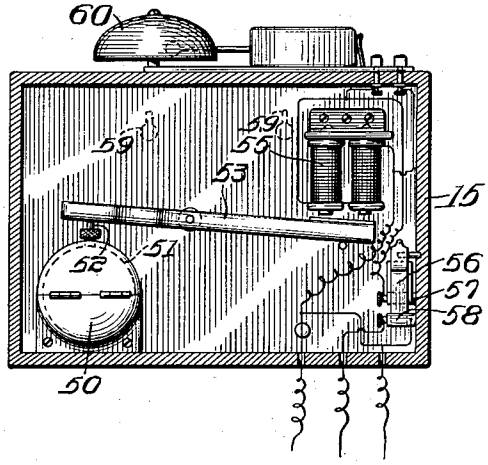
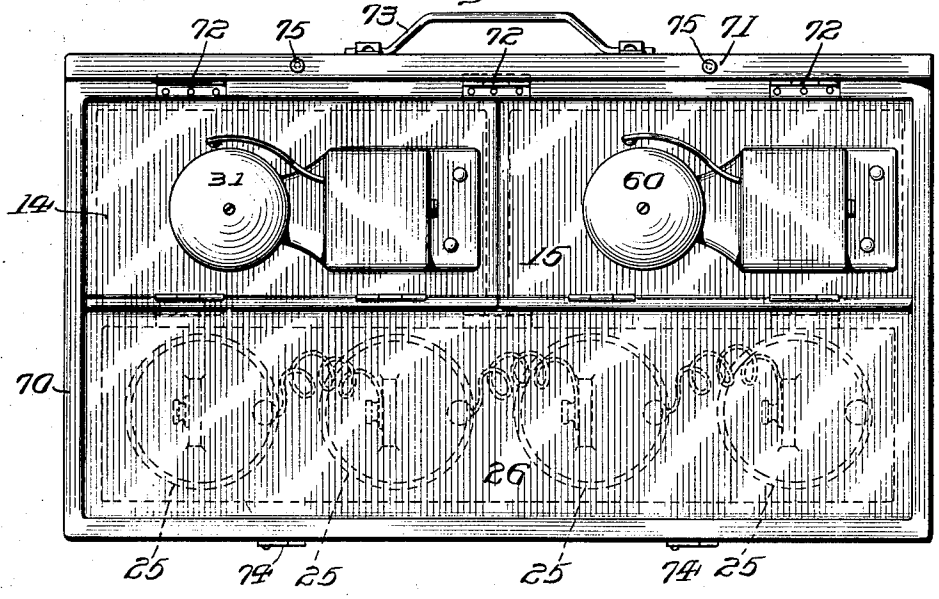


Fig. 6.



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TIMING DEVICE.

1,018,799. Specification of Letters Patent. Patented Feb. 27, 1912.

Application filed January 14, 1910. Serial No. 538,000.

To all whom it may concern:

Be it known that I, CHARLES F. WHITE, a citizen of the United States, and a resident of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Timing Devices, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to timing devices such as used at racing events, wherein a stop watch is actuated electrically to indicate the time consumed by a racer traversing the track from the starting line to the finishing line.

The principal objects of this invention are to more accurately determine the exact time consumed in traversing a certain predetermined course, and to accurately indicate at different stations contemporaneously, the precise moments at which said racer actually started and finished the race, and the time intervening between said start and finish, to provide means whereby the racer automatically actuates the mechanism for actuating the time pieces by his movements across the predetermined lines, and to provide portable mechanism that can be conveniently carried in a small hand case, and readily and speedily set in operative position.

The form of this invention hereinafter described provides a case inclosing timing mechanism adapted to be located at the "starter's station", and a case inclosing timing mechanism adapted to be located at the "judges' stand", each inclosing a stop watch controlled by a centrally pivoted lever, which is actuated by an electromagnet, and a switch which is connected with a fragile tape arranged to extend across the path of the racer and to be broken by his movement, and arranged to shift said switch to close the circuit through said magnet. The magnets inclosed by the cases disposed at the respective starting and stopping stations are electrically connected, so that the watches at each station are contemporaneously started or stopped by the breaking of the tape respectively at the "starter's station" or at the "judges' stand."

In the accompanying drawings, Figure 1 is a perspective view of timing mechanism conveniently embodying the improvements, suitably disposed on posts arranged in operative relation with a race track; Fig. 2 is a top plan view of the timing case which is arranged to be located at the "starter's station" shown at the left of Fig. 1; Fig. 3 is a horizontal sectional view taken slightly below the upper wall of the case shown in Fig. 2; Fig. 4 is a vertical longitudinal sectional view of the case shown in Fig. 2, taken on the line 4—4 in said figure; Fig. 5 is a vertical longitudinal sectional view similar to Fig. 4, of the timing case located at the "judges' stand" shown at the right of Fig. 3; Fig. 6 is a top plan view of a carrier case into which the timing cases and their batteries may be packed and conveniently carried, said carrying case being shown with its lid open; Fig. 7 is a diagrammatic view showing the wiring connections.

In said figures, the race track 8 comprises the opposed posts 9 and 10 upon opposite sides of said track at the "starter's station", and the posts 11 and 12 upon the opposite sides of said track at the "judges' stand", and the post 13 conveniently located opposite to the "spectators' stand".

The timing cases 14 and 15 are respectively located at the "starter's station" and "judges' stand", and are arranged to be respectively mounted on the posts 9 and 11. Said timing case 14 is provided with the fragile tape 16, which extends therefrom, through the eye 17 and across the track 8 a short distance above said track, and may be tied to the pin 18 on the post 10. The timing box 15 is provided with the fragile tape 20, which extends across the track and may be tied to the pin 21, extending from the post 12.

The timing cases 14 and 15 are conveniently connected by the line wires 22, 23 and 24, and the circuit includes the battery 25, inclosed in the battery box 26, and said line wires may include the branches 27, 28 and 29 extending to the spectators' clock 30.

The timing case 14, shown in Figs. 2, 3 and 4, is provided with a single stroke starting bell 31, connected by the wires 32 and 33 with the push bulb 34, whereby the racer is given the signal to start, said bell being used in place of the usual pistol shot signal. The bell 31 is conveniently mounted on the top wall of the timing case 14, whereby it is clearly audible to all within a reasonable distance.

Within the timing case 14 is disposed the hinged non-magnetic socket 35, arranged to receive the stop watch 36, having its face

visible through the aperture 37 and having its controlling stem 38, arranged to be successively pressed to alternately start and stop said watch by the oscillation of a centrally pivoted lever 39, having one end overhanging the stem 38 of said watch, and the other end forming the armature of an electromagnet 40. Said magnet 40 is arranged to be controlled by the switch 43 having the respective terminals 45 and 46.

The timing case 15 incloses the mechanism including the hinged non-magnetic socket 50 arranged to receive the stop watch 51 having the controlling stem 52 arranged to be successively pressed to alternately start and stop said watch by the oscillation of a centrally pivoted lever 53 having one end overhanging the stem 52 of said watch and the other end forming the armature of the electromagnet 55, said magnet being arranged to be controlled by the switch 56 having the respective terminals 57 and 58. Each of the cases 14 and 15 are provided with the apertures 59, of such form as to engage the heads of suitably spaced nails or headed pins driven into the posts 9 and 11, whereby said cases are conveniently supported. The timing case 15 is provided with the bell 60 mounted exterior thereto on its top wall, and connected in circuit with the magnet 55 in said case, so that when said magnet is actuated by the starting or finishing of the race a signal is given by the ringing of said bell.

The wiring connections will be best understood with reference to Fig. 7 of the drawing, wherein one terminal of a magnet 40 is connected through the battery 25 by the line wire 22, with one terminal of the magnet 55. The other terminal of the magnet 40 being connected to the terminal 45 of the switch 43, and is connected through the line wire 24 with the terminal 58 of the switch 56 at the "judges' stand". The other terminal of the magnet 55 is connected by the wire 63 with the terminal 57 of the switch 56 and through the line wire 23 with the terminal 46 of the switch 43 at the "starter's station". The signal bell 31 is connected through the battery 25, line wire 22, line wire 23, terminal 46 and connector 33 with the push bulb 34, so that said bell 31 may be sounded without affecting any of the stop watch actuating mechanism, while the bell 60 which is mounted on the timing case at the "judges' stand" is connected in series with the magnet 55 so as to be sounded contemporaneously with the closing of either the switch 43 at the "starter's station" or the switch 56, at the "judges' stand". The switch 43 is arranged to be closed by drawing the tape 16 taut and distorting the leaf spring of the terminal 46 against the leaf spring of the terminal 45; and the switch 56 is arranged to be closed by drawing the tape 20 taut and distorting the leaf spring connected with the terminal 58 against the leaf spring connected with the terminal 57.

It may be here noted that the alternate momentary closing of the circuit above described, alternately starts and stops the stop watches 36, so that, as may be readily seen when the racer breaks the tape 16 by his starting movement, the circuit is momentarily closed through the magnets 40 and 55, of the respective timing cases 14 and 15, which by shifting their respective levers 39 and 53, starts the stop watches at both the "starter's station" and the "judges' stand", simultaneously, and also starts the spectators' clock 30; and the breaking of the tape 20 at the "judges' stand" actuates the respective levers 39 and 53 at the respective stations, and contemporaneously stops each of said stop watches; so that it is unnecessary to go from one station to another to ascertain the difference in time from the starting to the finishing of the race, as said time is plainly indicated at each of the stations, and being electrically connected, the time pieces absolutely indicate the same time.

As shown in Fig. 6, the carrying case 70 is arranged to receive both of the cases 14 and 15, and the battery box 26, including the batteries 25. Said carrying case is conveniently provided with a hinged lid 71, having the hinges 72 and the handle 73 by which it is carried when said lid 71 is closed, and its hooks 74 are engaged with the pins 75, whereby the whole apparatus is portable.

It is not desired to limit this application to the precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of this invention as defined in the appended claims.

Having thus described my invention, I claim:

1. In a timing device, an electric circuit, a casing inclosing a stop watch, a centrally pivoted lever arranged to control said watch, a magnet arranged to shift said lever to engage said watch, an automatically resetting switch arranged to be actuated by the movement of a racer, to close said electric circuit through said magnet, and a bell mounted exterior to said casing and arranged within said circuit and to be actuated independently of said magnet.

2. In a timing device, an electric circuit, a casing inclosing a stop watch, a centrally pivoted lever arranged to control said watch, a magnet arranged to shift said lever to actuate said watch, an automatically resetting switch arranged to be actuated by the movement of a racer, to close said electric circuit through said magnet, and a signal bell mounted exterior to said casing included in

said circuit and independent of said magnet, a push button, and a flexible connector between said bell and said push button, whereby said bell is actuated.

3. A device for timing races, comprising a common electric circuit, a gong, time indicator and switch at one station, a gong and time indicator at a second station, means local to each station by which a racer actuates a mechanism local to each station, and a source of energy interposed between said stations, said elements being so connected in said common circuit that the first of said gongs is actuated by the closing of said switch, both of said indicators and the gong at the second station being actuated by the operation of the first of said local means, and both of said indicators and said last named gong being actuated by the operation of the second of said local means.

In witness whereof, I have hereunto set my hand this 27th day of December A. D., 1909.

CHARLES FRED. WHITE.

Witnesses:
ALEXANDER PARK,
CLIFTON C. HALLOWELL.