United States Patent

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[54] **GUN DRAWING TIMING APPARATUS**
2 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **273/1,** 273/102.2, 273/101
[51] **Int. Cl.** **A63f 9/02**
[50] **Field of Search** ..... 273/1(E), 102.2, 105.1

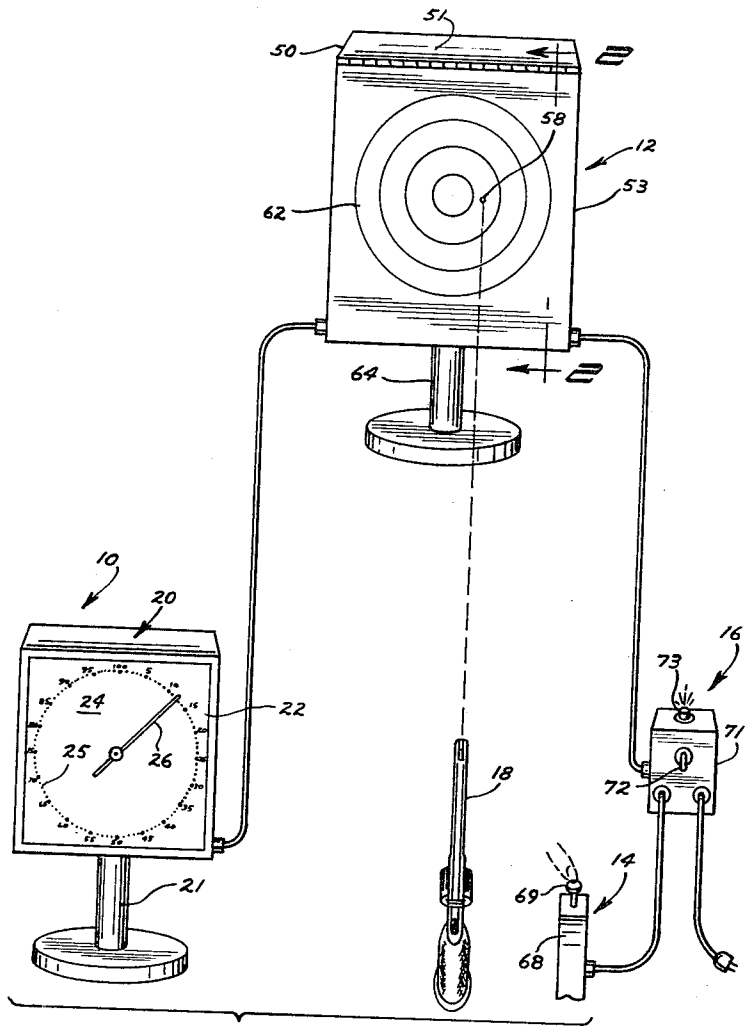
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ABSTRACT: A quick draw-timing apparatus for a hand gun consisting of an electrical-timing clock, a starting switch in circuit with said clock, a solenoid-actuated brake shoe to mechanically stop said clock, a target, a switch in connection with and actuated by said target upon the impact of a projectile, said target switch closing a circuit to energize said solenoid, said solenoid being arranged to break said starting switch circuit and deenergize said clock and to actuate said brake shoe to mechanically stop said clock.



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SHEET 1 OF 2

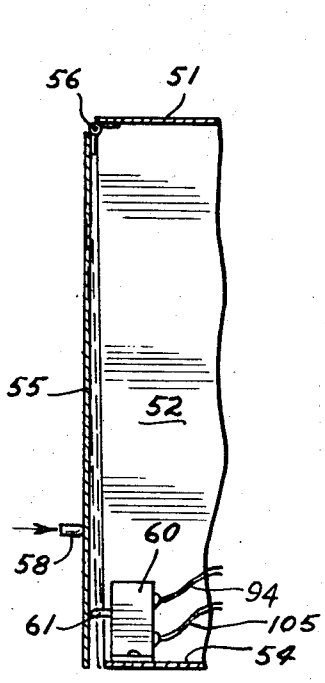


FIG. 2

FIG. 1

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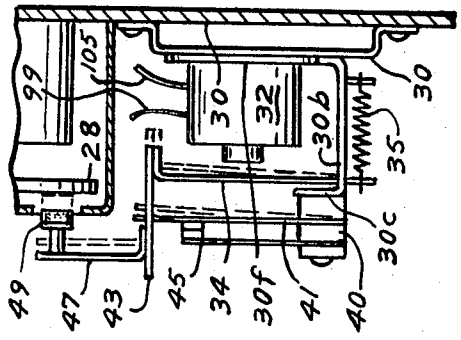


FIG. 4

FIG. 3

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GUN DRAWING TIMING APPARATUS

BACKGROUND AND SUMMARY OF THE INVENTION

This invention relates to an apparatus for measuring the time interval required for an operator to draw a handgun, fire the same and hit a target. The operator commences the action of the timing apparatus upon commencing to draw his gun and the impact of the fired projectile upon the target actuates means to stop the timing apparatus. A circuit is closed to energize the timing clock to commence the timing operation. Said circuit is deenergized to stop the timing apparatus. It is recognized that the rotor of an electric clock motor as a result of inertia or momentum may record an interval of time after the current is cut off in view of the timing in hundredths of a second. Hence in order to assure an immediate and positive stop of the timing clock, a mechanical means is used to stop the clock motor rotor upon the instant that the timing circuit is broken or deenergized.

To the knowledge of the inventor, there is no device in the art which embodies electrical means for commencing a timing apparatus and an electrically operated mechanical means in connection therewith to stop the timing apparatus.

The U.S. Letters Pat. No. 3,054,614 to Dean discloses a balloon-operated switch requiring the balloon to burst and relieve the switch to deenergize the timer. Time measured in hundredths of a second is lost here during the interval for the balloon to burst and the clock rotor to stop.

Other devices in the art are known which indicate whether a target is hit within a specified time, whether a target is hit within a specified or certain area and as to the number of hits made on a target. However, there is no disclosure known with reference to an electrical mechanical-stopping means for a positive instant stopping of a timing apparatus.

Generally stated, the apparatus disclosed and claimed herein comprises a timing clock having in connection therewith a hand-operated switch to close a circuit to energize said clock, an impact responsive switch in connection with the target, said target switch being arranged to break said first energized-timing circuit and to simultaneously close a circuit to actuate a solenoid-operated brakeshoe to mechanically stop the rotor of the timing clock motor.

It is therefore an object of this invention to provide means for measuring the interval of time required for an operator to draw a handgun, fire the same and hit a target.

It is more specifically an object of this invention to provide a quick drawing timing apparatus with respect to the operation of a handgun wherein the operator commences the timing apparatus as he commences his draw by the use of electrical means and wherein the timing apparatus is positively stopped upon the impact of the projectile upon the target by an electrically actuated mechanical means.

These and other objects and advantages of the invention will be set forth in the following descriptions made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

FIG. 1 is a composite view in perspective showing the elements of the apparatus in a schematic arrangement;

FIG. 2 is a broken view in vertical section taken on line 2–2 of FIG 1 as indicated;

FIG. 3 is a schematic wiring diagram with some apparatus being indicated; and

FIG. 4 is a fragmentary view in vertical section taken on line 4–4 of FIG. 3 as indicated.

DESCRIPTION OF A PREFERRED EMBODIMENT

With reference to the drawings, the essential elements of apparatus comprising the embodiment of the invention disclosed herein consists of a timing clock **10**, a target **12**, a starting element **14**, a junction box **16** and a fire arm or handgun **18**.

The timing clock **10** in the embodiment here presented comprises a housing **20** parallelepiped in form shown supported on a pedestal **21** and having mounted therein on the inner side of the front wall **22** thereof a conventional electrically driven motor **23**, dial **24** overlying the outer surface of said front wall and having indicia **25** thereon showing suitable increments of time in what is here indicated as being in hundredths of a second and having in connection therewith a pointer or sweep hand **26** which is supported on a shaft driven by said motor.

Shown in connection with said motor **23** is a rotor **28**. Secured to a mounting plate **30** fastened to the inner side of said front wall just below said motor and extending outwardly therefrom is an angled bracket **30** having a vertical rear wall **30** *a* carrying a solenoid **32**, and having a horizontal bottom wall **30** *b* and a short upstanding front wall **30***c*.

Pivotally upstanding from said bottom wall **30***b* and spaced from said solenoid is a plate member **34** normally free of engagement with said solenoid by action of spring **35** extending between a depending leg of said plate member and a depending projection from said bottom wall **30***b*, as illustrated.

A forward projection **40** carried by said wall **30***c* has a movable electrical contact **41** upstanding therefrom having its upper end portion projecting through an appropriate slot in a horizontal plate member **43** having one end secured as by welding to the upper end of the pivoted plate member **34**. Said slot is indicated but not shown. Spaced outwardly of said contact **41** is a stationary electrical contact **45** normally in engagement with said contact **41**.

Upstanding from said plate member **43** by a bracket **47** and adapted to engage said rotor **28** is a stopping means **49** formed as a circular brakeshoe and is normally free of engagement with said rotor.

In connection with said clock **10** is said target **12**. It will be understood that said target may be variously formed within the scope of the invention herein. Said target is indicated as being substantially parallelepiped in form comprising a housing **50** having here shown a top wall **51**, sidewalls **52** and **53**, a bottom wall **54** and a front wall **55**. Said front wall is shown pivotally hung from said top wall as by piano-type hinge **56**. Said front wall will be arranged to swing easily, such as in being responsive to the impact of a bullet here indicated by the reference numeral **58** and which for the purposes herein may be desirably formed of a plastic material. To permit said front wall to swing, the bottom wall **53** is shown to be somewhat shorter than the top wall **50** and the leading edges of the sidewalls will be inclined accordingly.

Carried on the inner side of said bottom wall **53** is a conventional microswitch **60** having a spring pressed plunger **61** normally in off position in engagement with the inner side of said front wall **55**. Carried on the outer surface of said front wall is a conventional target face **62** such as of paper and is readily replaceable. Said target may be otherwise supported than by the pedestal **64** here shown for purpose of illustration.

The starting element **14** is shown in the form of a small housing **68** which may be conveniently positioned for use and is shown embodying a circuit to be described and having a conventional plunger-type off-on switch **69**.

Said junction box **16** is of conventional design comprising a housing **71** embodying a toggle switch **72** which is the main power switch for the circuitry to be described and a signal light **73**. It will be understood that said junction box may embody said starter element **14**.

The following described circuitry which is shown schematically operatively connects the apparatus above-described.

A plug **80** will be connected to a suitable source of current to energize the circuitry. From said plug **80** lines **82** and **84** run to contacts **88** and **90** of the junction box **16** and said contacts are indicated as comprising a receptacle **86** whereby in practice said plug **80** and lines **82** and **84** may be in the form of a removable extension cord.

From the contact **88** a line **92** runs to one side of the timing clock starting switch **69** and in series with said line, a line **94**

runs to one side of the target microswitch **60**. From the other side of said switch **69**, a line **95** runs to the movable contact **41**. A line **96** runs from the stationary contact **45** to the timing clock motor **23**.

It will be noted that the main switch **72** is carried on the line **92** and will be mounted on the junction box **16**.

A neutral or ground line **98** runs from the contact **90** to said clock motor **23** to complete a circuit therewith. A line **99** runs from the line **98** to one side of the solenoid **32**. A line **105** runs from the other side of the microswitch **60** to the other side of the solenoid **32**.

A line **102** in series with the line **95** runs to the lamp **73** carried by the junction box and a neutral line **101** runs from said lamp the line **98**. It is seen that the lamp **73** is in series with said clock motor **23**.

OPERATION

To operate the apparatus, the target **12** will be suitably located with reference to the position of the operator as will the timing clock. The plug **80** will be connected to a suitable source of current and the main switch **72** will be placed in "on" position.

The clock starting switch will be positioned conveniently for engagement by the operator. The operator will engage said switch with his gun-drawing hand at the commencement of its natural gun-drawing motion.

The contacts **41** and **45** are in engagement and the timing clock motor circuit is energized. As the timing clock commences to operate, the lamp **73** is lighted.

Upon impact of the target face **62** by the projectile fired, the front wall **55** is moved or swung sufficiently to actuate said microswitch **60** and energize the line **105** and as a result the solenoid **32**. Said solenoid moves the contact **41** away from the contact **45** to break the timing clock circuit and stop the clock motor and at the same time said solenoid causes said brakeshoe **49** to engage the rotor **28** mechanically and positively stopping the same on the instant. Thus the momentum or inertia of the rotor is stopped on the instant when otherwise the rotor could record an interval of time after the clock motor circuit is broken.

Thus electrical means are utilized to commence the timing cycle and a combination of electrical and electrically actuated mechanical means are utilized to stop the timing cycle.

The apparatus is simply constructed and provides a very desirable and effective timing apparatus.

I claim:

1. A quick drawing and timing apparatus having a handgun, having in combination:

an electrical circuit including an electric timing clock;

said circuit including a movable contact normally in closed circuit position with respect to said timing clock, and movable to an open circuit position;

operating means for energizing said timing clock circuit;

a target comprising a face plate swingably responsive to an impact thereon;

a normally open switch operatively engaged by said face plate;

mechanical means for engaging and stopping the rotor of said clock and moving said movable contact to open circuit position;

electrical means operating said mechanical means;

said electrical means comprising a solenoid in electrical connection with said normally open switch;

said mechanical means comprising a bracket in connection with said solenoid;

a plate member extending upwardly of said bracket pivotally supported thereon, and operatively connected to said solenoid;

a stop member carried by said plate member; said plate member being adapted to engage said movable contact to move it to its open circuit position; and

means normally positioning said plate member to have said stop member out of engagement with said clock rotor and to have said movable contact in closed circuit position;

whereby impact upon said switch by said target face closes said normally open switch, operating said solenoid to move causing engagement of said stop member with said rotor and movement of said movable contact to open circuit position to thereby stop said timer.

2. The structure set forth in claim **1**, wherein:

said plate member has an angled substantially horizontal portion and a vertical bracket upstanding therefrom;

said horizontal portion has a slot therein through which a portion of said movable contact is disposed; and

said bracket carries said stop member.