

A. F. TYLER.
ENGINE STOP AND RECORDING DEVICE.
APPLICATION FILED JUNE 1, 1912.

1,065,192.

Patented June 17, 1913.

2 SHEETS-SHEET 1.

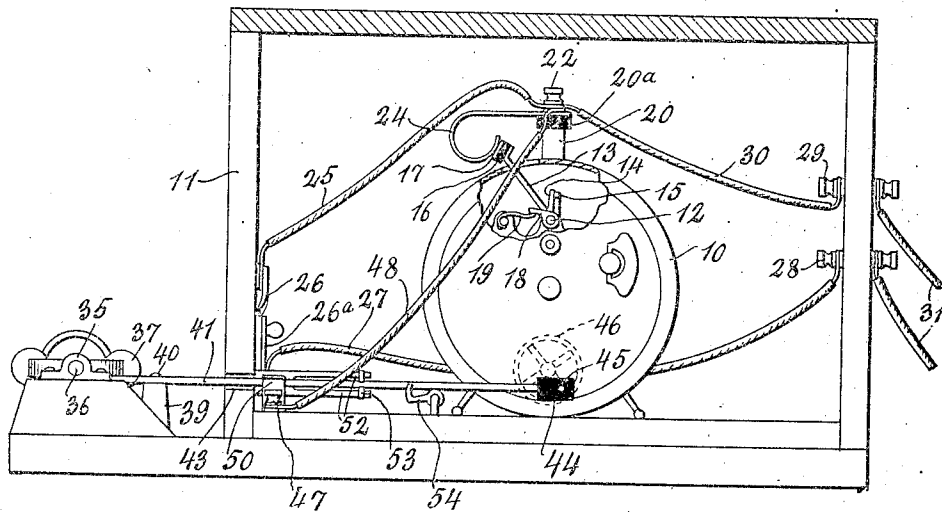


Fig. 1.

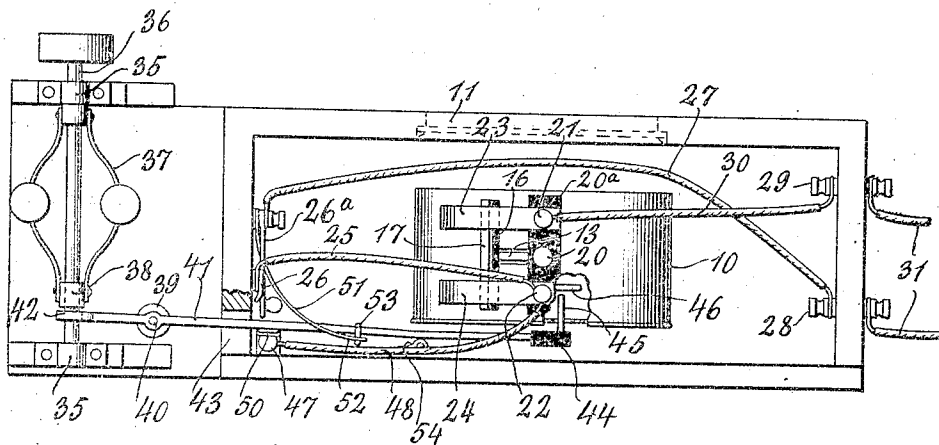


Fig. 2.

Inventor

A. F. Tyler.

By *August B. Thomas*

Attorney

Witnesses

E. Larson

W. A. Schmidt

A. F. TYLER.
ENGINE STOP AND RECORDING DEVICE.
APPLICATION FILED JUNE 1, 1912.

1,065,192.

Patented June 17, 1913.
2 SHEETS—SHEET 2.

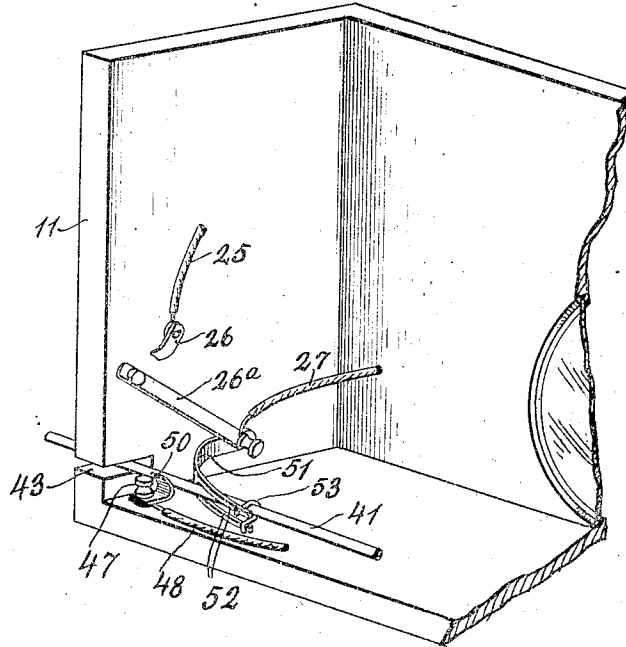


Fig. 3.

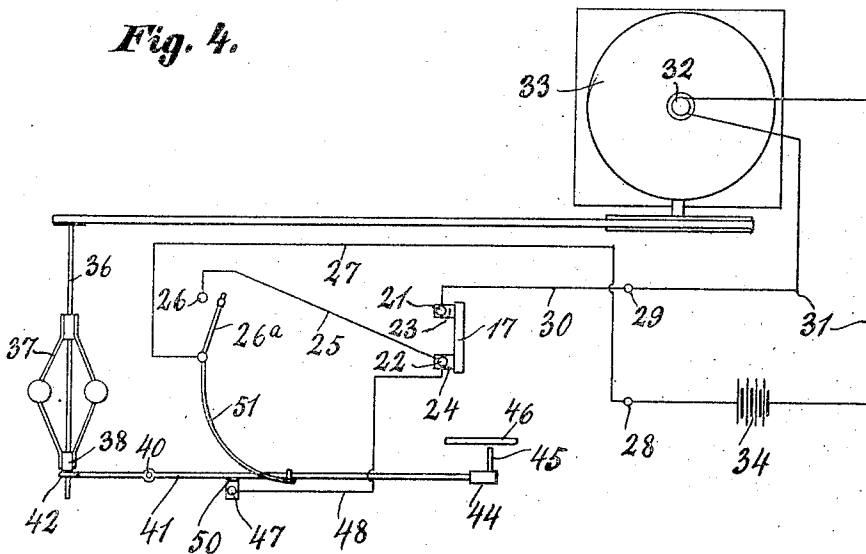


Fig. 4.

Inventor

A. F. Tyler.

Witnesses

E. Larson

M. Schenck

By

Eugene H. Stearns

Attorney

UNITED STATES PATENT OFFICE.

ASA F. TYLER, OF MERLIN, OREGON.

ENGINE STOP AND RECORDING DEVICE.

1,065,192.

Specification of Letters Patent.

Patented June 17, 1913.

Application filed June 1, 1912. Serial No. 701,002.

To all whom it may concern:

Be it known that I, ASA F. TYLER, a citizen of the United States, residing at Merlin, in the county of Josephine and State of Oregon, have invented certain new and useful Improvements in Engine Stop and Recording Devices, of which the following is a specification.

The present invention relates to mechanism for automatically stopping an engine at a predetermined time; and also in case of accidental stoppage of the engine to indicate the time of such stoppage.

The invention is designed more particularly for internal-combustion engines in which the electric current for the igniter circuit is derived from a battery. The device includes means for breaking the circuit when the engine stops, whereby waste of the electric current is prevented.

It is the object of the invention to provide a mechanism of the kind stated which is simple in construction and reliable in operation, and in which an ordinary alarm-clock may be employed as the time-controlling element.

With these and other objects in view as will be pointed out in the detailed description appearing hereinafter, the invention consists in a novel combination of parts which will now be described, reference being had to the accompanying drawings, in which—

Figure 1 is a rear elevation, partly broken away, of the mechanism. Fig. 2 is a plan view. Fig. 3 is a perspective view of a fragment of the mechanism. Fig. 4 is a diagrammatic view of the mechanism.

Referring specifically to the drawing, 10 denotes an ordinary alarm-clock which is inclosed in a suitable casing 11. The alarm-train of the clock is arranged in the usual manner and includes an oscillatory shaft 12 to which the hammer-stem 13 is fastened. From this shaft extends a pin 14 which is engageable by a detent 15, which latter withdraws from the pin at a predetermined time, according to the time for which the alarm is set, and thus releases the shaft. Instead of a hammer, the stem 13 carries at its outer end a block 16 of insulating material on which is mounted a contact strip 17. The alarm-bell is also removed from the clock. On the shaft 12 is made fast a lug 18 which is engageable by the free end of a spring 19 suitably mounted in the housing of the clock.

The clock-casing, at the top thereof, carries a support 20 on which is mounted a block 20^a of insulation. This block carries two binding posts 21, and 22, respectively. To the binding post 21 is connected a switch tongue 23, and to the binding post 22 a switch tongue 24. These two tongues are engageable by the contact strip 17 when the detent 15 engages the pin 14, and when the detent is retracted to release the shaft 12, the spring 19, through the lug 18, rocks said shaft in a direction to disengage the contact strip from the tongues, the stem 13 swinging with the shaft.

From the binding post 22 a conductor 25 leads to a switch tongue 26 mounted in the casing 11 on one end of the walls thereof. On said end wall is also mounted a switch lever 26^a from which a conductor 27 leads to a binding post 28 on the opposite end wall of the casing 11. On the last-mentioned end wall of the casing is a binding post 29 from which a conductor 30 leads to the binding post 21. To the binding posts 28 and 29 are connected the wires 31 of the two sides of the ignition circuit, said wires leading to the igniter 32 of the engine which latter is shown diagrammatically at 33 in Fig. 4. In the ignition circuit is interposed a battery 34 from which the electric current is derived.

On the outside of the casing 11, adjacent to one end thereof, are mounted bearings 35, in which is supported the shaft 36 of an ordinary centrifugal speed governor 37, which latter is driven from the engine 33, the shaft 36 being belted or otherwise geared thereto. The governor actuates a sleeve 38, which slides back and forth on the shaft 36 as the governor responds to the varying speeds at which the engine runs.

On a suitable support 39, is fulcrumed at 40, a lever 41 having at one end a yoke 42 which straddles the shaft 36 and bears against the sleeve 38. The other end of the lever extends into the casing 11 through a slot 43 in the end wall thereof, and carries a block 44 of insulation. The block carries a pin 45 which extends through a hole in the back of the clock-casing and is so located that it may come in contact with the balance-wheel 46 of the clock-train, and thus stop the clock.

On the floor of the casing 11 is mounted a binding post 47 which is connected by a conductor 48 to the binding post 22. The bind-

ing post 47 also secures a contact spring having an upturned end 50 which bears against the lever 41.

To the pivot of the switch lever 26 is secured a flat spring 51 having a forked free end 52 which straddles the lever 41. A double hook 53 carried by the lever 41 engages the fork branches. The spring 51 serves to swing the lever 41 in a direction to disengage the pin 45 from the balance-wheel 46, and also to hold said lever in contact with the spring 50.

The operation of the apparatus is as follows: The contact strip 17 is placed in engagement with the switch tongues 23 and 24, the alarm being set to go off at the desired time. The ignition circuit is now closed, and the engine may be started. The circuit may be traced as follows: from one side of the battery 34 to binding post 28, by conductor 27 to switch 26, and thence by conductor 25 to switch tongue 24, and through contact 17 to switch tongue 23 and thence by conductors 30 and 31 to the igniter 32 and back to the other side of the battery. If the switch 26 is open the circuit is from the conductor 27 to spring 51, lever 41, spring 50, and by conductor 48 to switch tongue 24. The switch 26 is used for starting only. When the time arrives for which the alarm has been set, the detent 15 is retracted, whereupon the contact 17 is withdrawn from the switch tongues 23 and 24, and the circuit is broken. The igniter is thus thrown out of action and the engine stops. It will therefore be seen that the engine is time-controlled, and the apparatus may be set to allow the engine to run any desired length of time.

The mechanism which indicates the time of an accidental stoppage of the engine operates as follows: When the engine 33 is running the weights of the governors 37 fly outward and draw the sleeve 38 along the shaft 36 in such a direction that the lever 41 is free to be swung by the spring 51 in a direction to make contact with the spring 50 and also to withdraw the pin 45 from the balance-wheel 46. The switch 26 is then thrown off. The clock is now started. The circuit is now as follows: from one side of the battery 34 to binding post 28, by conductors 27 to the pivot of the switch 26, then through spring 51, rod 41, spring 50 and conductor 48 to switch tongue 24, and through contact 17 to switch tongue 23, and then by conductors 30 and 31 to igniter and to the other side of the battery. If now the engine should stop, the igniter circuit is broken and the clock is also stopped. The clock will therefore correctly indicate the time of stoppage of the engine, and the battery current is also prevented from being wasted. This breaking of the circuit and stoppage of the clock is effected in the fol-

lowing manner: When the engine stops the weights of the governor 37 recede toward shaft 36, whereby the sleeve 38 is pushed back against the forked end of the lever 41, thus swinging the lever on its pivot in a direction to become disengaged from the spring 50, and to advance the pin 45 into engagement with the balance-wheel 46 of the clock, thereby breaking the circuit and stopping the clock. The switch 26 is used only for starting the apparatus.

The floor of the casing 11 carries a hook 54 which is designed to be slipped over the lever 41 to hold the same while the mechanism is being set.

The mechanism can be thrown out of operation by disconnecting the shaft 36 from the engine, and holding the lever 41 in inoperative position by means of the hook 54. If the clock stop mechanism is to be used only, all that is necessary to do is to disconnect the conductor 30 from the binding post 21 and connect the same to the binding post 22.

I claim:

1. The combination of an internal-combustion engine and its ignition circuit, a clock, a speed governor driven by the engine, and a governor-controlled means for breaking the ignition circuit and stopping the clock.

2. The combination of an internal-combustion engine and its ignition circuit, a speed governor driven by the engine, a clock, a lever actuated by the governor and having means for stopping the clock when swung in one direction, said lever being in electrical connection with the ignition circuit, and a contact in said circuit engageable by the lever.

3. The combination of an internal-combustion engine and its ignition circuit, a shaft driven from the engine, a speed governor on said shaft, a sleeve carried by the governor and slidable on the shaft, a clock, a lever engageable with the sleeve and having means for stopping the clock when swung in one direction, said lever being in electrical connection with the ignition circuit, and a contact in said circuit engageable by the lever.

4. The combination of an internal-combustion engine and its ignition circuit, a speed-governor driven by the engine, an alarm clock, a contact carried by the hammer stem of the alarm train of the clock, contacts in the ignition circuit, said contacts being engageable by the first-mentioned contact, a lever actuated by the governor and having means for stopping the clock when swung in one direction, said lever being in electrical connection with the ignition circuit, and a contact in said circuit engageable by the lever.

5. The combination of an internal com-

bustion engine and its ignition circuit, a speed-governor driven by the engine, an alarm clock, a contact carried by the hammer stem of the alarm train of the clock, contacts in the ignition circuit, said contacts being engageable by the first-mentioned contact, a lever actuated by the governor and having means for stopping the clock when swung in one direction, said lever being in electrical connection with the ignition circuit, and a contact connected to one of the second-mentioned contacts and engageable by the lever.

6. The combination of an internal-combustion engine and its ignition circuit, a clock, a movable element driven by the engine, and means operated by said element for breaking the ignition circuit and stopping the clock.

7. The combination of an internal-combustion engine and its ignition circuit, a movable element driven by the engine, a clock, a lever actuated by the movable element and having means for stopping the clock when swung in one direction, said lever being in electrical connection with the ignition circuit, and a contact in said circuit engageable by the lever.

8. The combination of an internal-combustion engine and its ignition circuit, a movable element driven by the engine, an

alarm clock, a contact carried by the hammer stem of the alarm train of the clock, contacts in the ignition circuit, said contacts being engageable by the first-mentioned contact, a lever actuated by the aforesaid movable element and having means for stopping the clock when swung in one direction, said lever being in electrical connection with the ignition circuit, and a contact in said circuit engageable by the lever.

9. The combination of an internal-combustion engine and its ignition circuit, a movable element driven by the engine, an alarm clock, a contact carried by the hammer stem of the alarm train of the clock, contacts in the ignition circuit, said contacts being engageable by the first-mentioned contact, a lever actuated by the aforesaid movable element and having means for stopping the clock when swung in one direction, said lever being in electrical connection with the ignition circuit, and a contact connected to one of the second mentioned contacts and engageable by the lever.

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

ASA F. TYLER.

Witnesses:

H. F. McCLELLAN,
J. J. HENSEL.