

Oct. 7, 1930.

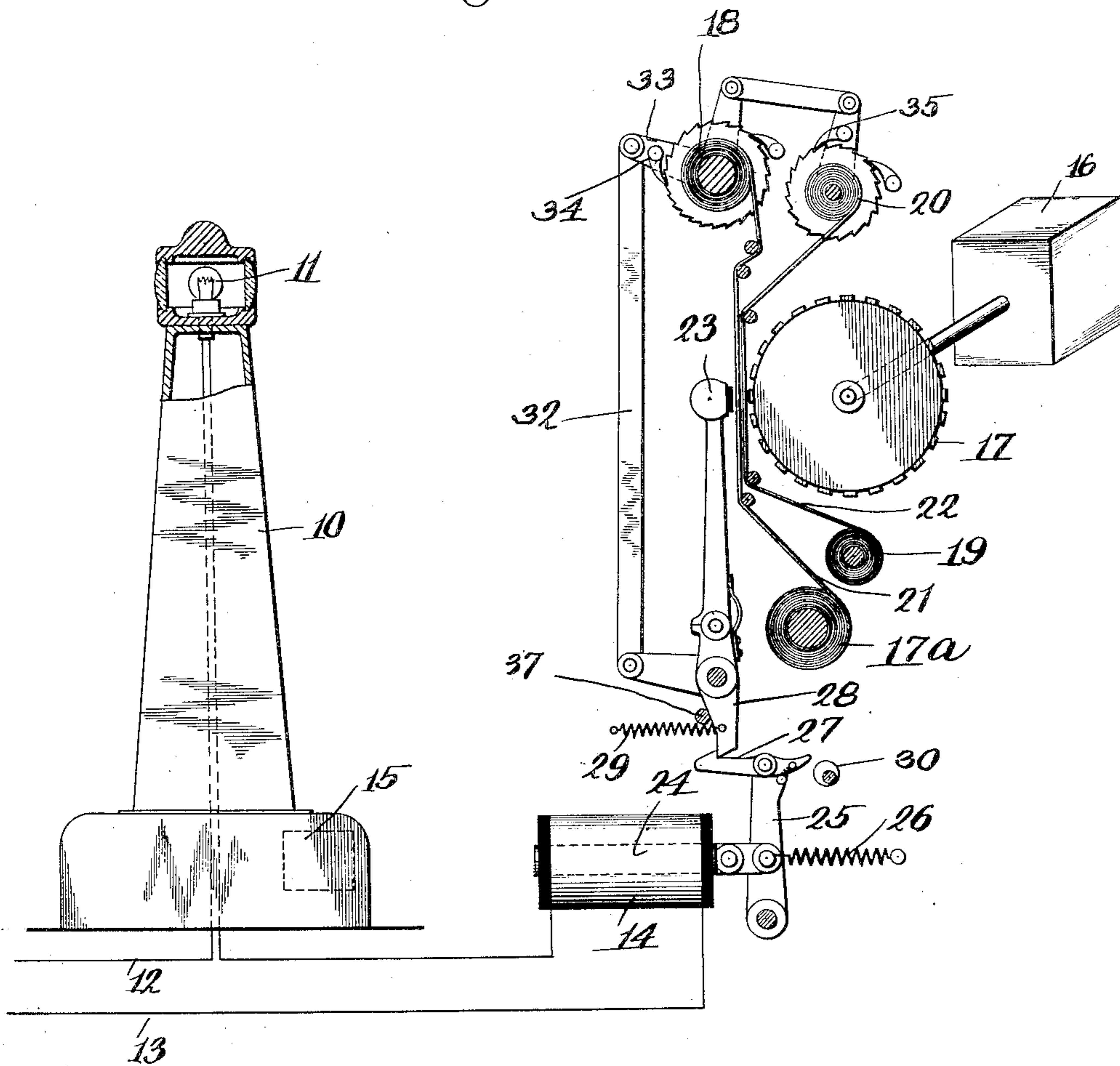
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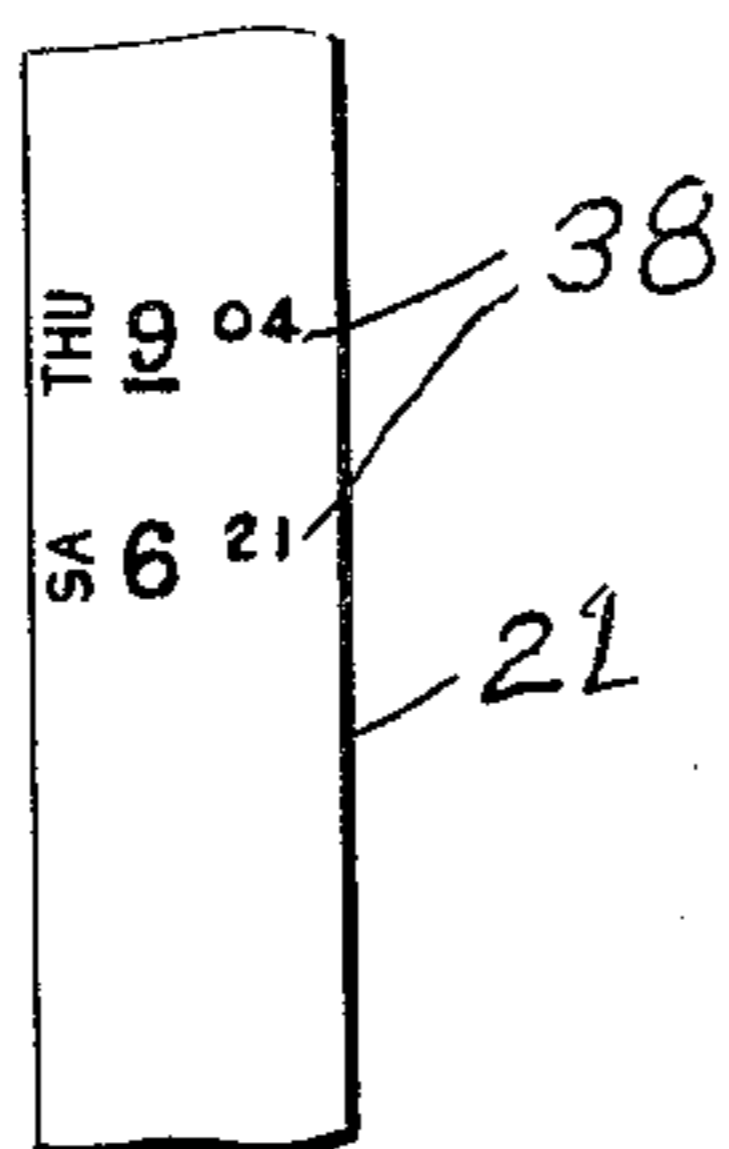
TIME RECORDING SYSTEM FOR SIGNALS

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*Fig. 1*



*Fig. 2.*



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## UNITED STATES PATENT OFFICE

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## TIME-RECORDING SYSTEM FOR SIGNALS

Application filed November 13, 1924. Serial No. 749,602.

The present invention has for its objects the improvement of the construction shown, described and claimed in my copending application, Serial No. 749,601, filed Oct. 13, 1924, wherein means is provided for indicating the time of failure of a signal in a street traffic signalling system. According to the present invention provision is made for effecting a printed record of the time of failure of a signal instead of controlling a clock mechanism and retaining a visual record within the apparatus as in my previous application.

The present invention has for its object the provision of an apparatus arranged to be controlled by a signal device such as is used in street signalling so that a record will be made within the apparatus upon a suitable tape of the time at which the signal device fails to function properly.

A further object of the present invention resides in the provision of a construction in which a plurality of such records may be made so that a record may be secured of successive failures of the signal device.

A further object of the present invention resides in the provision of automatic record taking devices for making a record of the time of signal failures in which means is provided for automatically restoring the record taking means to a condition for taking a subsequent record upon the re-establishment of the signal which had previously failed.

In the drawings,

Fig. 1 illustrates diagrammatically one embodiment of an apparatus for carrying out my invention.

Fig. 2 illustrates a detail view of the record tape.

In more detail in the drawings, 10 designates the pedestal of a silent policeman or other signal tower which carries the usual signal lamp 11. Current is supplied to the lamp by the usual mains 12, 13. Disposed in one of the mains 13 is a magnet 14 preferably arranged to be energized at all times when the lamp 11 is illuminated. The magnet 14 is intended to control the record taking operation and this magnet together with its associated and controlled parts together with

the clock mechanism and type wheels driven thereby are preferably located in a suitable box such as shown by the dotted line casing 15 located within the base of pedestal 10. The recording mechanism comprises a clock 16 of any suitable form adapted to drive a group of time wheels 17. These time wheels are of the form commonly used in recorders and are arranged to set up days, hours and minutes. Inasmuch as the detailed arrangement of such wheels is well known in the art no detailed illustration of their drive is here given. 17<sup>a</sup> designates a paper strip supply roll and 18 a take-up roll. 19 is an ink ribbon supply roll and 20 the take-up roll. 21 is the record strip and 22 the inking ribbon. 23 is a printing platen arranged to be impelled against the record strip to effect a record thereon of the amount of time standing on the type wheels.

The magnet 14 is preferably of the solenoid type and is provided with a core 24 connected with a pivoted arm 25 which is normally drawn to the right by the tension spring 26. Solenoid 14 remains energized so long as the signal lamp 11 continues to burn. Should this signal lamp fail to burn for any reason either on account of failure of the current supply, burning out of the lamp or the breakage of the supply mains, solenoid 14 will be deenergized. Spring 26 will thereupon draw arm 25 to the right retracting a pawl member 27 to the right and rocking a platen setting arm 28 in a counterclockwise direction against the tension of the platen spring 29. Spring 26 is preferably of sufficient strength to overpower spring 29. Upon continued movement of the pawl 27 to the right the tail of the pawl contacts with a stop or camming pin 30 and rocks the pawl counterclockwise so as to release it from engagement with the part 28. Thereupon spring 29 comes into action to swing the platen 23 in a clockwise direction and make a record upon the record-tape of the time then standing on the type wheels. The movement of the part 28 is also utilized to control the advancing of the paper feed and ink ribbon devices. These operations are preferably effected by means

of a link 32 which extends to an arm 33 carrying suitable pawls 34 and 35 which co-operate with the ratchet wheels on the ink ribbon take-up roll 20 and the paper feed take-up roll 18. The arrangement of the parts is preferably such that paper feed and ink ribbon feed is effected during the setting of the platen 23. The platen 23 is preferably spring-connected to the member 28 so that the actual striking operation is effected by the inertia of the platen hammer 23 after member 28 contacts with a fixed stop 37.

The foregoing has described the operation of the device for taking a record upon the failure of the signal to function. After one record has been taken the device is so arranged that upon the reenergization of the solenoid 14 due for example to the reestablishment of current in mains 12 and 13, this reenergization of the solenoid and reestablishment of the signal will reset the parts so that a subsequent record can again be taken upon the next subsequent failure of the signal. Reenergization of the solenoid 14 will draw part 25 to the left against the tension of spring 26. Pawl 27 will be drawn to the left and will finally be cammed downwardly and latched under the end of part 28. The parts are now in condition for a subsequent recording operation upon the next failure of the signal 11 to function properly.

The use of the apparatus will be readily understood. Inspections can be made of the various signal devices from time to time. The record strip may be observed and if this record strip shows time imprints such as 38 thereon each time imprint will designate the exact time when the signal apparatus failed to function in a proper manner.

What I claim is—

In a device for recording the time of failure of a traffic signal operated continuously by an electric circuit; time-operated printing wheels, a hammer coacting with said wheels for making an impression on a record sheet, a spring for actuating the hammer, a latch cooperating with said hammer for restraining actuation thereof, an armature to which said latch is pivoted, a magnet in series with said signal in said circuit for controlling said armature, and a fixed element for engaging said latch upon release of said armature by said magnet upon signal failure to rock said latch out of cooperation with said hammer thereby permitting the latter to perform a printing operation.

In testimony whereof I hereto affix my signature.

THOMAS J. WATSON.