

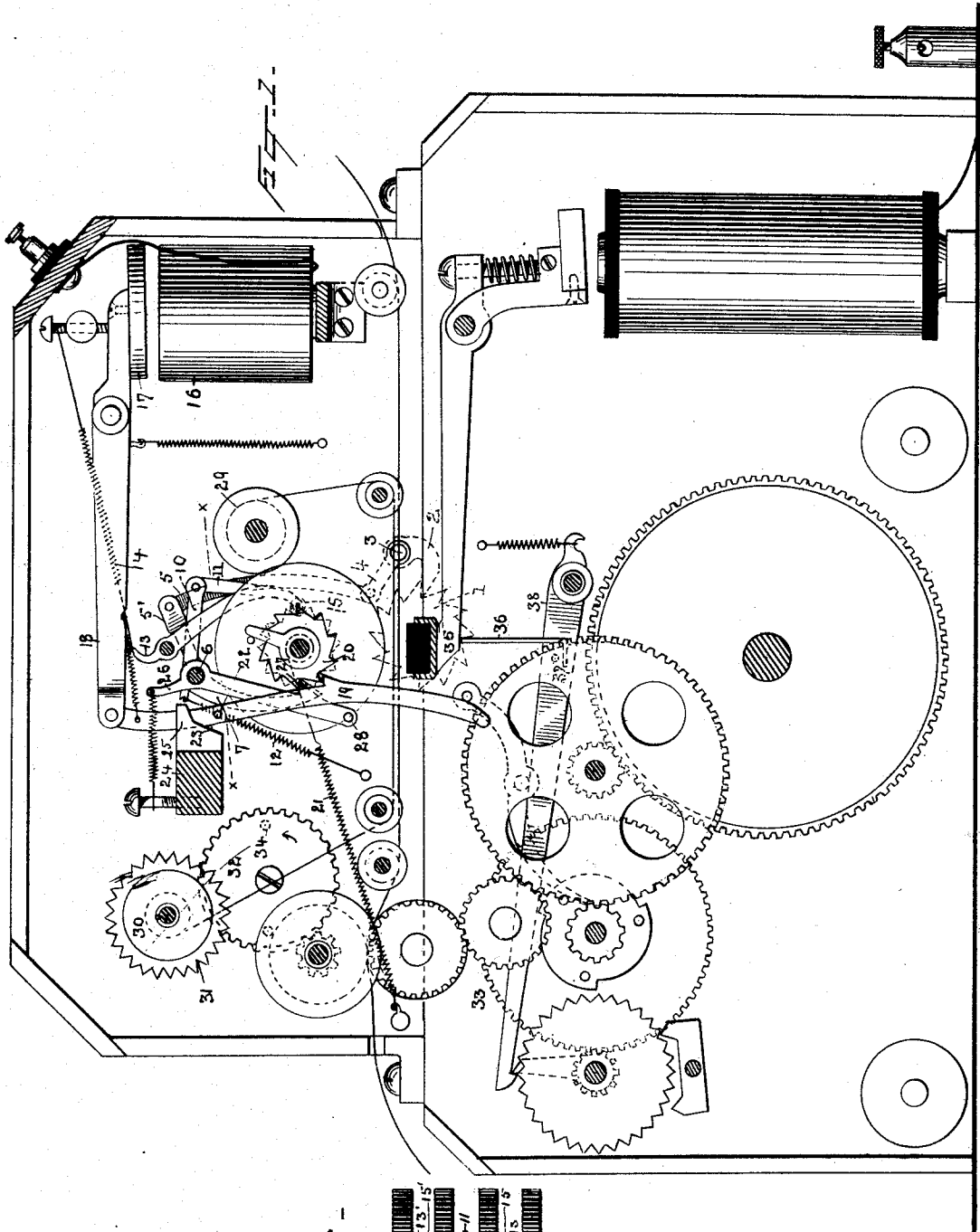
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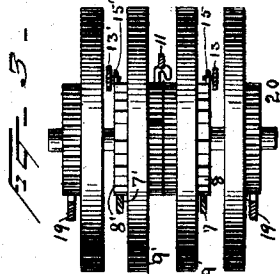
C. E. ONGLEY.  
ELECTRIC TIME RECORDER.

No. 505,062.

Patented Sept. 12, 1893.



WITNESSES:  
*Edward C. Rowland.*  
*Eugene Courau*



INVENTOR  
*C. E. Ongley*  
 BY *Syert Seely*  
 ATTORNEYS.

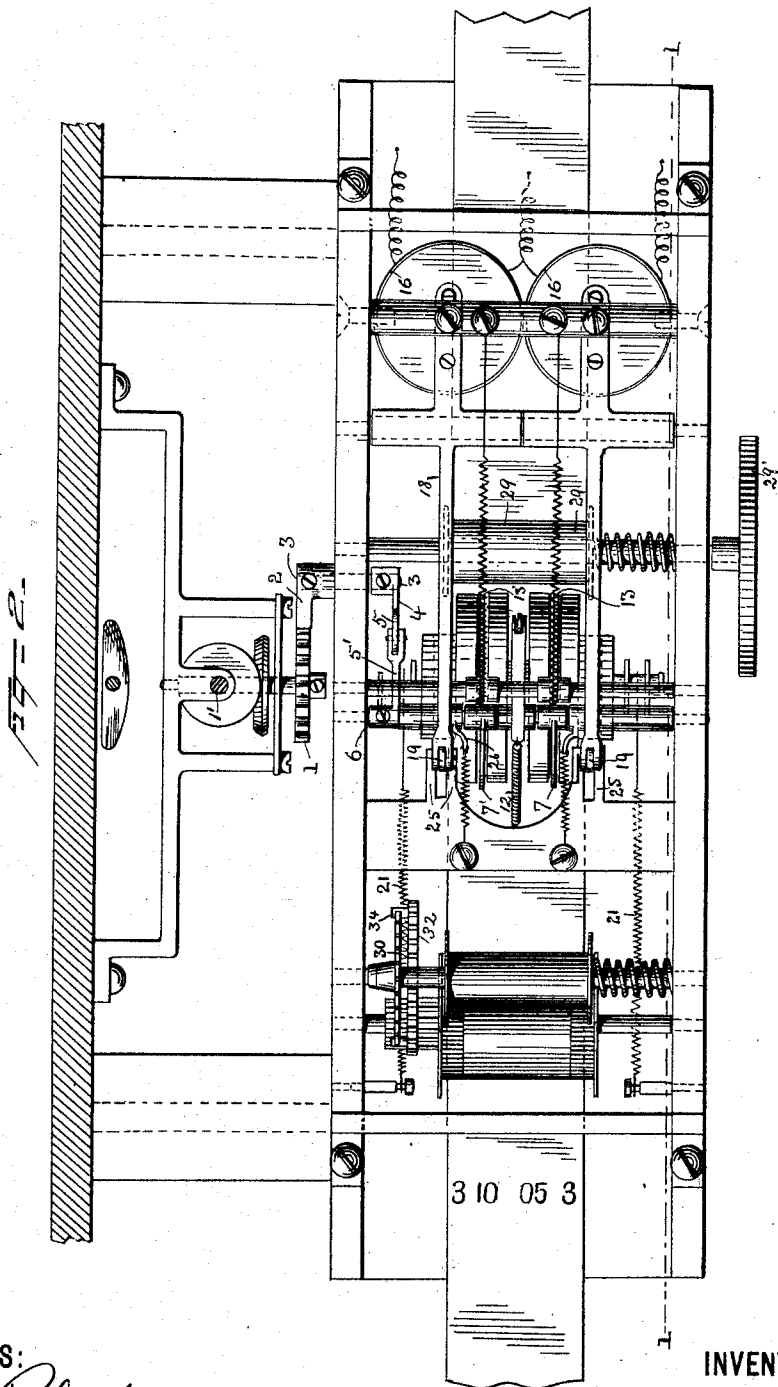
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2 Sheets—Sheet 2.

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*Edward Rosland,*  
*Eugene Couran*

INVENTOR

BY *C. E. Ongley*  
*Syert Seely*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

CHARLES E. ONGLEY, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE ONGLEY ELECTRIC COMPANY, OF SAME PLACE.

## ELECTRIC TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 505,062, dated September 12, 1893.

Application filed January 24, 1891. Renewed November 16, 1892. Serial No. 452,143. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. ONGLEY, a citizen of the United States, residing at New York city, in the county and State of New York, have invented a certain new and useful Improvement in Recorders or Registers, (Case U,) of which the following is a specification.

The present invention relates to recorders of the class adapted to simultaneously print the time and a station or box number, or similar information, in a single line on a record tape.

My object is, to provide improved means for controlling the type wheels, the ink ribbon, and the invention consists in the devices described for accomplishing said objects as hereinafter set forth.

In the accompanying drawings, Figure 1 is a side view of the recorder or register, one side of the inclosing case being removed. Fig. 2 is a plan view of the recorder, a portion of the inclosing case being removed; and Fig. 3 is a view on line  $xx$  of Fig. 1 looking in the direction of the arrow.

The recorder or register is of the same general character as that described in my Patent No. 443,787, granted December 30, 1890. In said patent is described an apparatus having two time printing type wheels periodically moved forward by clock work, so that at whatever time the printing platen is moved against the paper the correct time will be recorded. As the clock revolves, a ratchet wheel acts on a system of pivoted levers raising a weight periodically and allowing it to fall onto and move a pawl, which pawl engages with the time printing type wheels to move them. By a well known arrangement of devices, including a pawl with operating parts of different lengths and one deep notch in the minute wheel, the minute wheel is advanced one step every five minutes, and the hour wheel is advanced one step every hour. On each side of the two time printing type wheels are other type wheels adapted to be moved forward step by step by magnets in circuits extending to distant signal boxes. In the present improvement the weight operated by the clock movement as above described, which requires considerable power and reduces the

time during which the clock will run without rewinding, is dispensed with and means requiring less power and which are more positive in their operation are substituted.

In recorders heretofore used, especially when used in connection with transmitters which send very rapid and strong impulses over the circuit, it often happens that the type wheels move farther than intended and thus a wrong signal is given. I provide certain devices to prevent possibility of this defective operation. In certain recorders the ink ribbon is moved forward one space at each stroke of the printing platen, but this is unnecessary since a ribbon will give fourteen or more good impressions without being moved forward. In the recorder to be described the ribbon is advanced one step after a series of about twelve impressions.

1 is a ratchet wheel turned at a regular speed by a clock which is not shown in this application but which is arranged to drive shaft 1' which is geared to the shaft of wheel 1.

2 is an arm or hook engaging with the teeth of said wheel and fixed to the shaft 3, on the opposite end of which is an arm 4, pivoted to arm 5, which arm is secured to arm 5', rigidly mounted on shaft 6. Fixed on the same shaft are two arms 7, 7', the lower end of each of which has an end fitted to bear in the depressions of star wheels 8, 8', secured to the time printing type wheels 9, 9'. 10 is an arm also rigidly mounted on shaft 6 and supports a propelling pawl 11 for the time printing type wheels. To the opposite end of the arm 10 is connected a spring 12.

13, 13' are pivoted arms having retracting springs 14, and having at their lower ends rollers 15, which rest against the star wheels connected to the time printing type wheels.

16 are magnets in circuits extending to a suitable transmitter. Each magnet has an armature 17 on a pivoted lever 18, to the outer end of which is connected a propelling pawl 19 adapted to engage with the ratchet wheels 20 on the number printing type wheels. 21 are springs against the force of which these type wheels are moved.

22 is a pin on the pawl arm and normally stands below and out of contact with the inclined, bevel or cam face 23 of the block 24.

The pawl arms 19 pass between the extensions 25 of the block 24 and are guided and steadied thereby.

26 is an arm loose on the shaft 6, and having near its lower end a tooth 27 to prevent reverse motion of the type wheels while they are being moved to any desired position to print.

28 is a pin projecting from arm 26.

29 is a roll on which an ink or other suitable ribbon is wound.

29' is a hand wheel on the outside of the case by means of which the ink ribbon may be rewound. 30 is a second roll to which the opposite end of said ribbon is connected. On this roll is a toothed wheel 31 adjacent to a wheel 32, which may be driven by the paper feeding mechanism 33 or by any suitable motor.

On the wheel 32 are one or more pins 34 projecting sufficiently far to engage with the teeth of the wheel 31. Two pins are shown diametrically opposite each other.

35 is the printing platen, and from it depends a hook or link 36, adapted to engage with a pin 37 on the pivoted detent lever 38 each time that the printing platen is moved.

The operation of the apparatus is as follows: As wheel 1, which has twelve teeth, is revolved once an hour by the clock mechanism, the arm 2 is moved downward each time that a tooth passes, and this movement draws down the arm 5' thereby turning the shaft 6 and moving the propelling pawl 11 of the time type wheels down, moving the minute wheel one space; at the same time the arms 7, 7', being rigid on the same shaft, move toward the left and release the type wheels so that they are free to be moved by the pawl 11. The time type wheels, are, however, prevented from being carried too far by each operation of the pawl by the resistance of the rollers 15 at the end of arms 13, since said rollers always bear against the star wheels. When the minute wheel has been moved a certain number of times, it will bring a deep notch under the propelling pawl, allowing said pawl to enter sufficiently far to engage with the ratchet of the hour type wheel as described in my patent above referred to. To set the two outer type wheels, the circuit is first made and broken a definite number of times through one magnet 16 and then through the other magnet 16. If the makes and breaks are rapid and the current employed strong, the impulses given to the type wheels will be sudden and the wheels will tend to move more than one space owing to their momentum, but as the propelling pawl 19 rises, the pin 22 will strike the cam face 23, forcing the pawl toward its ratchet wheel 20, so that said wheel, and therefore the type wheel to which it is connected, cannot move further than the length of one tooth. The type wheels having been thus brought to the desired position, circuit is closed through the printing magnet, and the printing platen 35 carries the paper and the

ink ribbon up against the type wheels, and the hook 36 releases the paper feeding mechanism which advances the paper one line and also moves the pawls 19 back out of engagement with their ratchet wheels, allowing springs 21 to return their type wheels to the zero position. Each time that the paper feeding mechanism is released, it moves the wheel 32 forward one step, and when this wheel has been thus advanced about twelve steps, one of the pins 34 will strike a tooth of the wheel 30, moving said wheel and advancing the ink ribbon one space to bring a fresh surface above the printing platen. It will be seen that the wheel 32 is entirely out of gear with the wheel 30 during a greater part of its movement and is in engagement only for a short time, that is, while a pin 34 bears against a tooth of wheel 30. Owing to this arrangement the ink ribbon can be easily rewound from roll 30 to roll 39 by means of the hand wheel 29'.

Having thus described the invention, what I claim is—

1. The combination of time printing type wheels having ratchet wheels connected thereto, a wheel propelled by time mechanism, a shaft turned by said wheel through a series of levers, a propelling pawl for the type wheels connected to the same shaft, whereby it is moved in accordance with the time mechanism, substantially as described.

2. The combination of time printing type wheels having ratchet and detent wheels connected thereto, a wheel propelled by time mechanism, a shaft turned by said wheel, a propelling pawl for the time type wheels connected to the same shaft whereby it is moved in accordance with the time mechanism, and detent levers resting against each detent wheel, substantially as described.

3. The combination of a wheel, a magnet, an armature and a pawl for advancing said wheel step by step, and a cam adjacent to said pawl and pressing it toward the wheel when it has moved the wheel one space, substantially as described.

4. The combination of a wheel, a magnet, an armature and a pawl, a block having an inclined or cam face in the line of movement of the pawl, a projection on said pawl adapted to strike the inclined face, whereby the pawl is moved toward the wheel and the wheel is prevented from moving more than one space at each impulse, substantially as described.

5. The combination of an ink or similar ribbon, rolls on which said ribbon is supported, a wheel connected to one roll, a wheel moved by a suitable motor, a pin on said wheel in position to move the roll once for each revolution of the wheel, substantially as described.

6. The combination of an ink or similar ribbon, rolls on which said ribbon is supported, a wheel connected to one roll, paper feeding mechanism, a wheel moved by said paper feeding mechanism, and a pin on said wheel in position to move the roll once for each

revolution of the wheel, substantially as described.

5 7. The combination of an ink or similar ribbon, rolls on which said ribbon is supported, a wheel connected to one roll, a wheel moved by a suitable motor, and pins on said wheel normally out of engagement with the roll but in position to move said roll as the wheel carrying the pins revolve, substantially as described.

10 8. The combination of a roll on which an ink or similar ribbon is wound, a second roll to which one end of the ribbon is connected, means for turning the second roll, said means being out of engagement during a part of

each revolution, and means for turning the first roll to rewind the ribbon, substantially as described.

9. The combination, in a recorder, of paper feeding mechanism, a detent lever therefor, a printing platen and a hook or link between said detent lever and platen, substantially as described.

This specification signed and witnessed this 23d day of January, 1891.

CHARLES E. ONGLEY.

Witnesses:

J. A. YOUNG,  
EUGENE COURAN.