

I. KITSEE.  
RECORDING DEVICE.

(Application filed Mar. 16, 1900.)

(No Model.)

Fig. 1.

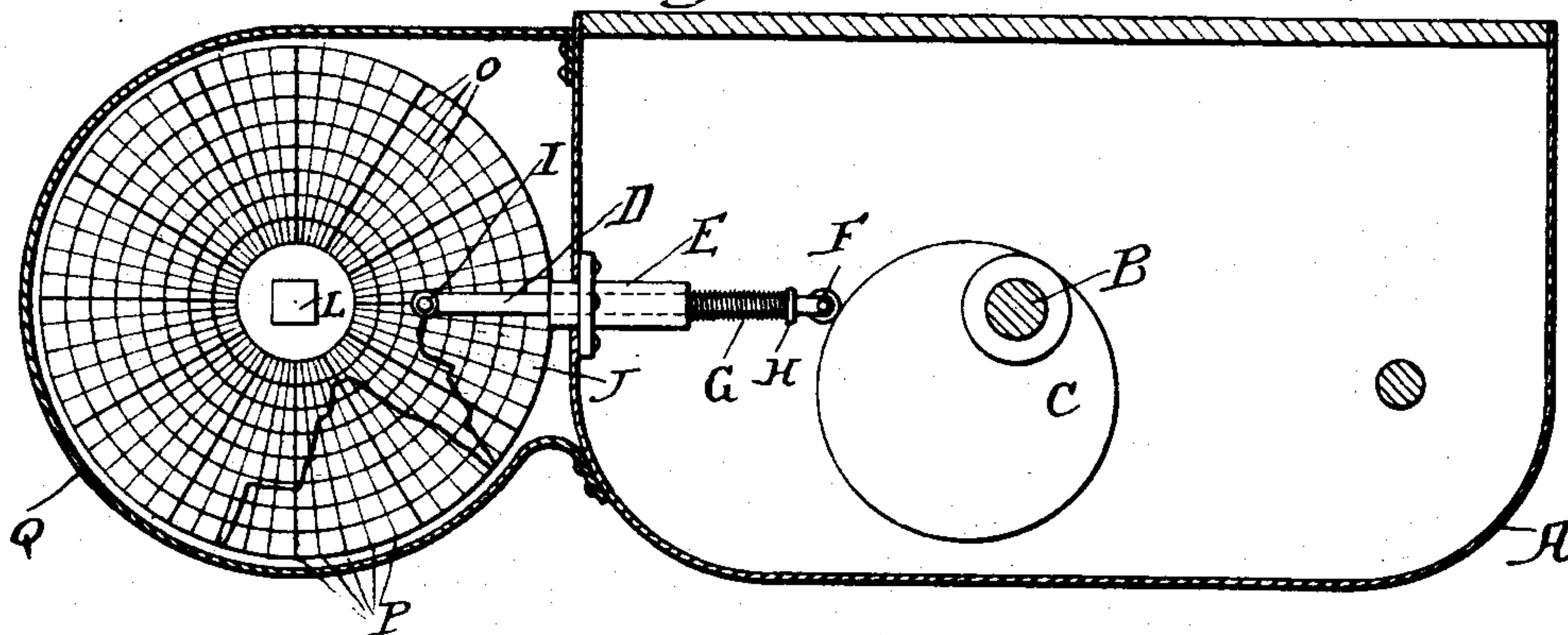


Fig. 3.

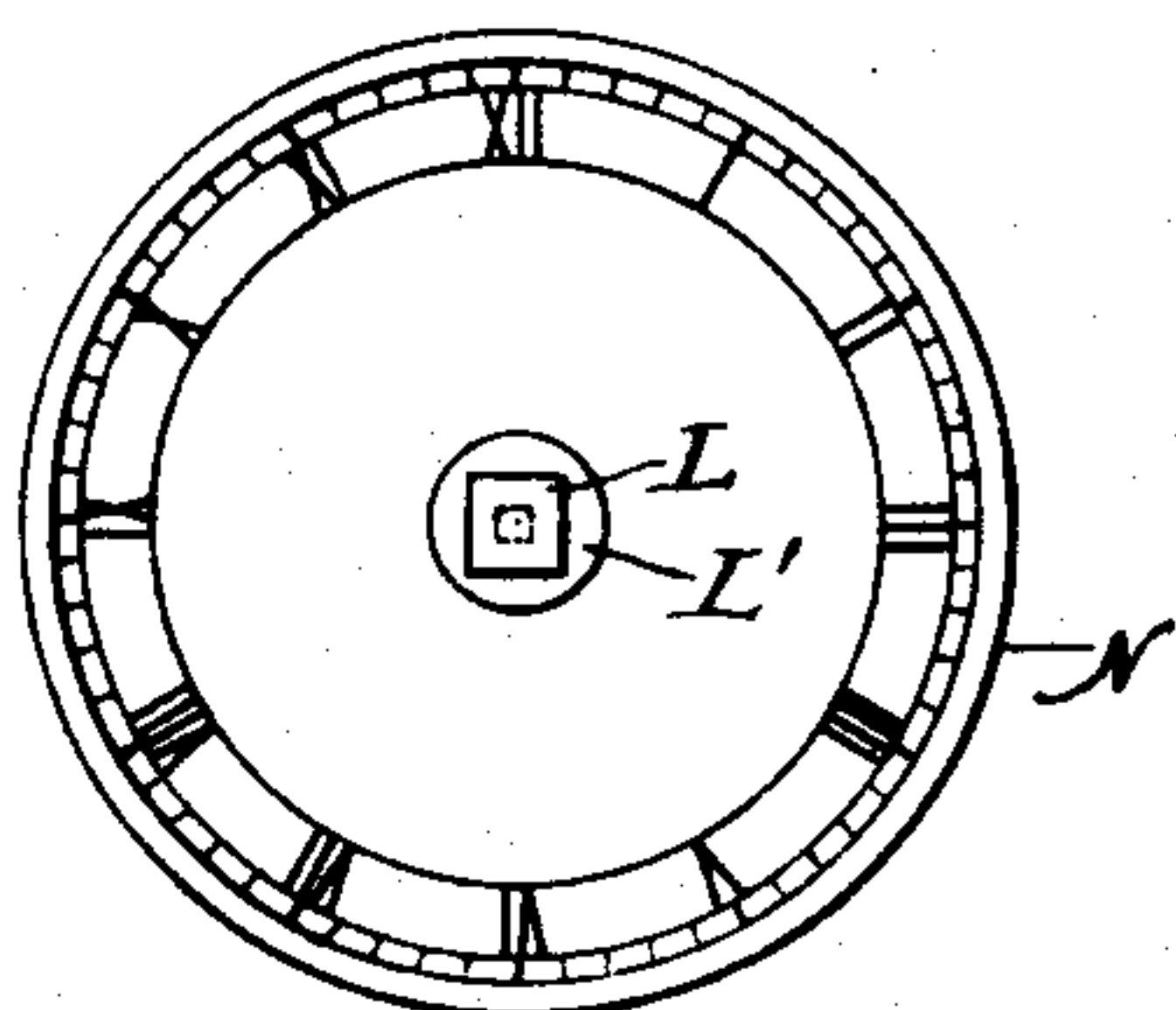


Fig. 2.

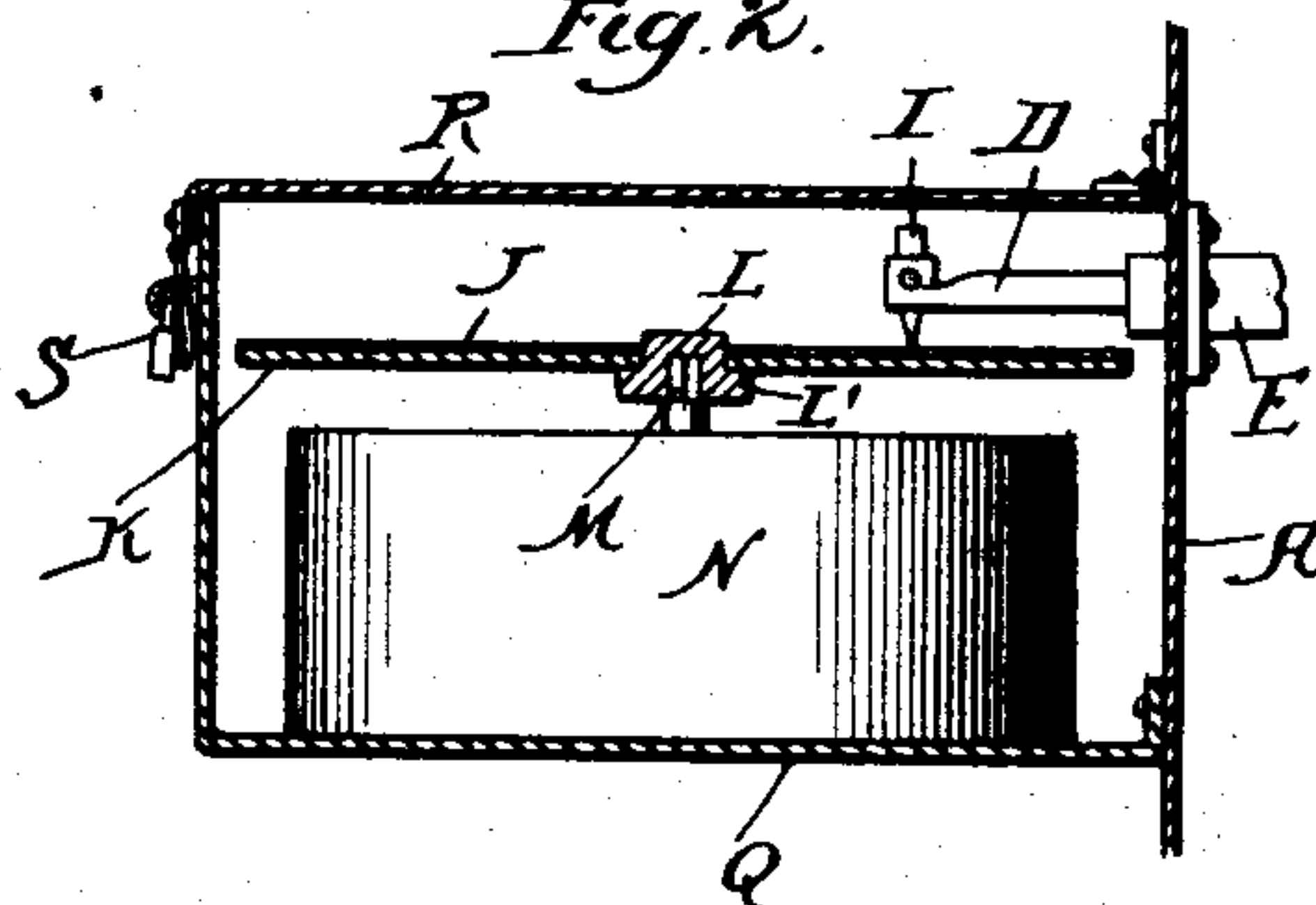


Fig. 4.

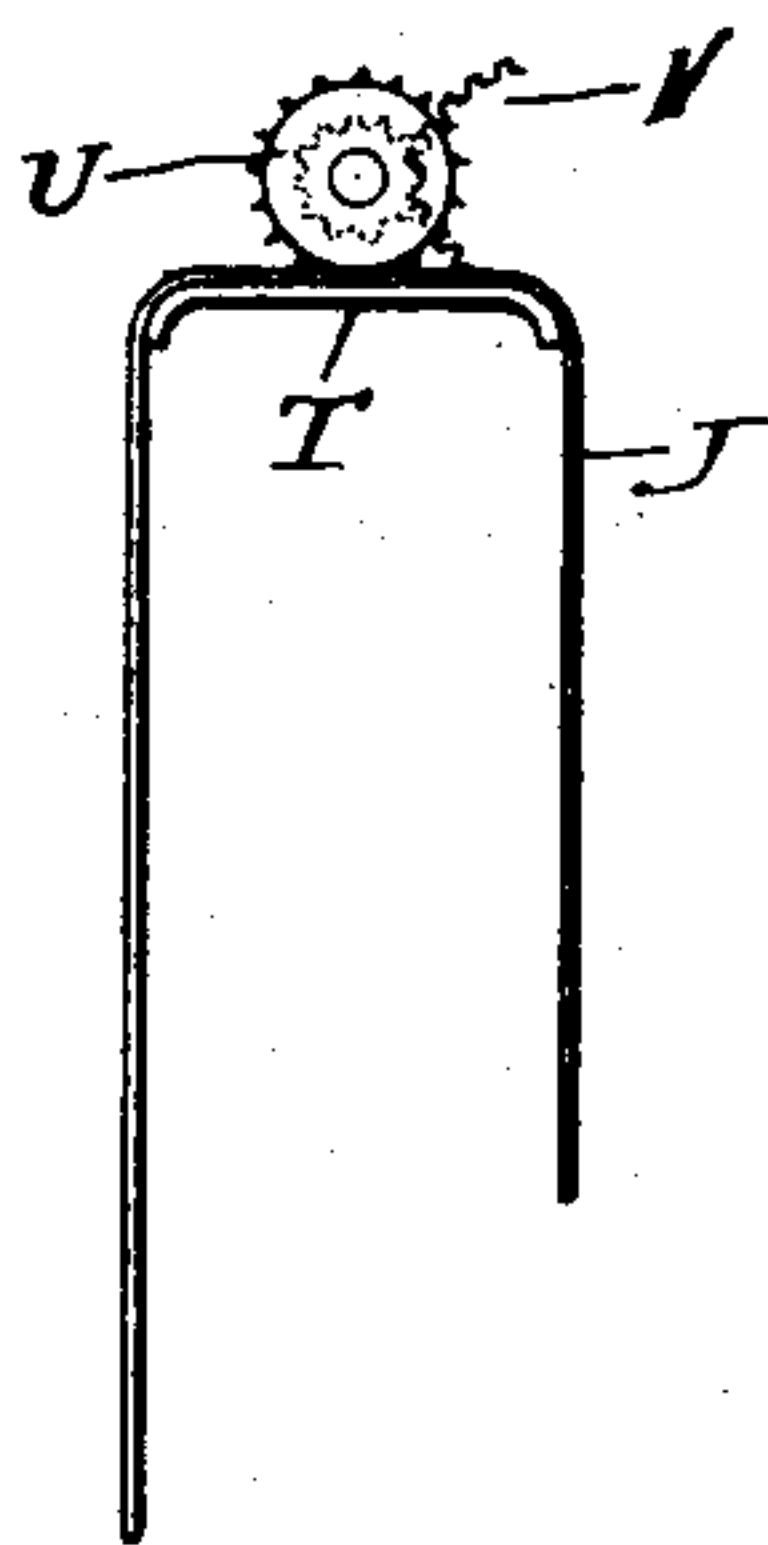
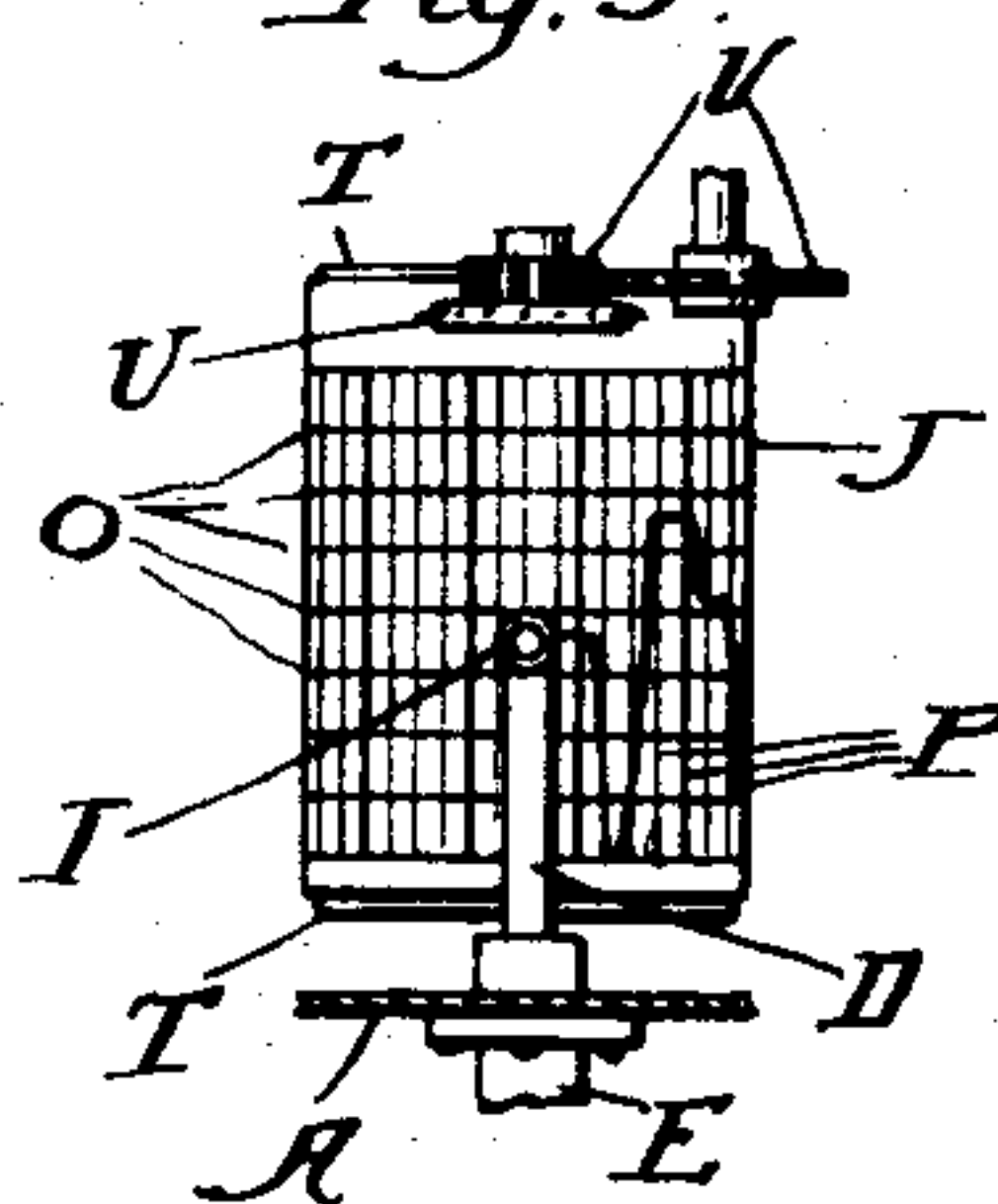


Fig. 5.



Witnesses:

H. B. Hallock.  
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Inventor:

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# UNITED STATES PATENT OFFICE.

ISIDOR KITSEE, OF PHILADELPHIA, PENNSYLVANIA.

## RECORDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 682,205, dated September 10, 1901.

Application filed March 16, 1900. Serial No. 8,914. (No model.)

*To all whom it may concern:*

Be it known that I, ISIDOR KITSEE, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and  
5 useful Improvements in Recording Devices, of which the following is a specification.

My invention relates to an improvement in recording devices.

The object of my invention is to record automatically the movements of the controller with the aid of which connections of electric motors or other electric machines are made with their source of energy.

It is the special aim of this my invention to  
15 provide means to record automatically the movements of the controller on electric cars, so that the person in charge of the different cars should at a glance at one of the charts be able to find out if the regulation of the motor was a proper one and for how long a time  
20 one or the other of the connections—series or multiple—were maintained.

In electric railways the impressed voltage is known to the person in charge of the station. So also does the proper officer know  
25 what amperage may flow through the motor if the controller is brought to one or the other of the steps indicated on the outside of the controlling-box, thereby bringing about different connections of the motor with the circuit. If, therefore, a car is provided with a device automatic in its action, recording the different positions of the controller as well as  
30 the time these positions are maintained, the person in charge could readily ascertain if the motor were handled according to instructions and could approximate the amount of current used by the car provided with my recording device.

Referring to the drawings, Figure 1 is a plan view of the controller with its casing, having my improved recording device attached. Fig. 2 is a longitudinal section of the same. Fig. 3 is a plan view of the clock  
45 mechanism. Fig. 4 is an end view of a modified form, and Fig. 5 is a plan view of this modification.

A is the controller-casing; B, the shaft carrying the brushes; C, a cam secured to the

shaft B; E, a bearing secured to the casing A; 50 D, an arm adapted to slide in the bearing E.

F is a roller adapted to bear against the cam C and to be pressed against the same with the aid of the spring G.

H is a shoulder on the arm D.

The end of the arm D nearest to the recording-disk J is provided with the marking-stylus I. The recording-disk is preferably placed on the supporting-disk L, provided with the flange L'.  
55 60

M is a shaft with which one of the wheels of the clock N is provided. On this shaft is secured the supporting-disk L, with the recording-disk J. This disk is provided with the circular lines O and the perpendicular  
65 lines P. The lines P are time divisions, and the lines O represent the divisions for the different positions of the controller.

Q is the casing for the recording instrument, R the cover, and S its lock.  
70

In Fig. 1 the recording-paper is shown in the form of a disk. In Figs. 4, 5, and 6 the recording-paper is shown in the form of a preferably endless strip. In these figures, T  
75 is a flat surface on which the strip J rests. The toothed wheel U is adapted to carry the paper over the support at the proper speed.

The *modus operandi* of practicing my invention is as follows: The controller-shaft is provided with the cam C, secured to it with  
80 the aid of screws. A part of the casing of the controller is cut away to receive the bearing E, which is secured with the aid of screws to this casing. The recording device provided with the disk or endless paper is then  
85 secured to the outer surface of the casing of the controller in a manner so that the end of the stylus rests against the paper. When the car is ordered to leave the depot, the station-master adjusts the recording device so that  
90 the same may point to zero and then locks the same. On the return of the car the station-master will reopen the casing and remove the disk from the recorder. This disk will show him, first, for how long a time the car  
95 was on the road; second, for how long a time the car was at a standstill on the road; third, for how long a time the car was moving, and,



fourth, for how long a time the different circuits of the motor were connected in multiple or series. In fact, every variation in the connection of the motor, the time such connection was made, and the time such connection was maintained will be revealed to the station-master at a glance.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A controller adapted to control the connections of an electric motor to its source of energy, provided with means, automatic in their action, to record the different positions of the movable part of said controller.

2. A controlling device for electric motors, in combination with a registering device, the movements of the movable parts of the registering device being controlled by the movements of the movable part of the controlling device.

3. A controller adapted to control the electric connections of a motor to its source of energy, in combination with a registering device adapted to record the movements of the movable part of said controller and in further combination with a timing device adapted to control the time movements of the movable part of the registering device.

4. In a controller adapted to control the electric connections of a motor to its source of energy, a movable shaft provided with a cam or device similar in its action, in combination with an adjustable arm provided with a marking device, the movements of said adjustable arm being controlled by the different positions of the cam or device similar in its action.

5. A registering device in combination with a controlling device adapted to control the connections of a motor to its source of energy, the movement of the recording-stylus of said registering device being controlled by the movable device of the controller proper, in

combination with the timing device controlling the time movements of the material on which the record is made.

6. In combination with a controller adapted to control the connections of a motor to its source of energy, a registering device consisting of the movable arm provided with a recording-stylus and adapted to be actuated by the movement of the movable part of the controller, in combination with a material adapted to receive the recording-marks, said material being designed to be operated by a timing device with which the recording device is provided.

7. In a registering device adapted to be operated by a controlling device designed to control the connections of the motor to its source of energy, a material designed to receive the recording - marks, said material being provided with time-divisions and controller-divisions, the controller-divisions being adapted to record the positions of the movable part of the controller proper, and the time-divisions being adapted to mark the length of time said positions are maintained.

8. A controller provided with a casing in combination with a recording device, the casing of which is secured to the casing of said controller, said recording device being provided with a movable arm passing through the opening of said controller-casing, one terminal of said movable arm being in contact with the movable part of said controller and one terminal of said movable arm being in contact through a recording-stylus with the movable material designed to have recorded thereon the movements of said stylus.

In testimony whereof I hereby sign my name, in the presence of two subscribing witnesses, this 6th day March, 1900.

ISIDOR KITSEE.

Witnesses:

WM. M. DEUTSCH,  
EDITH P. STILLEY.