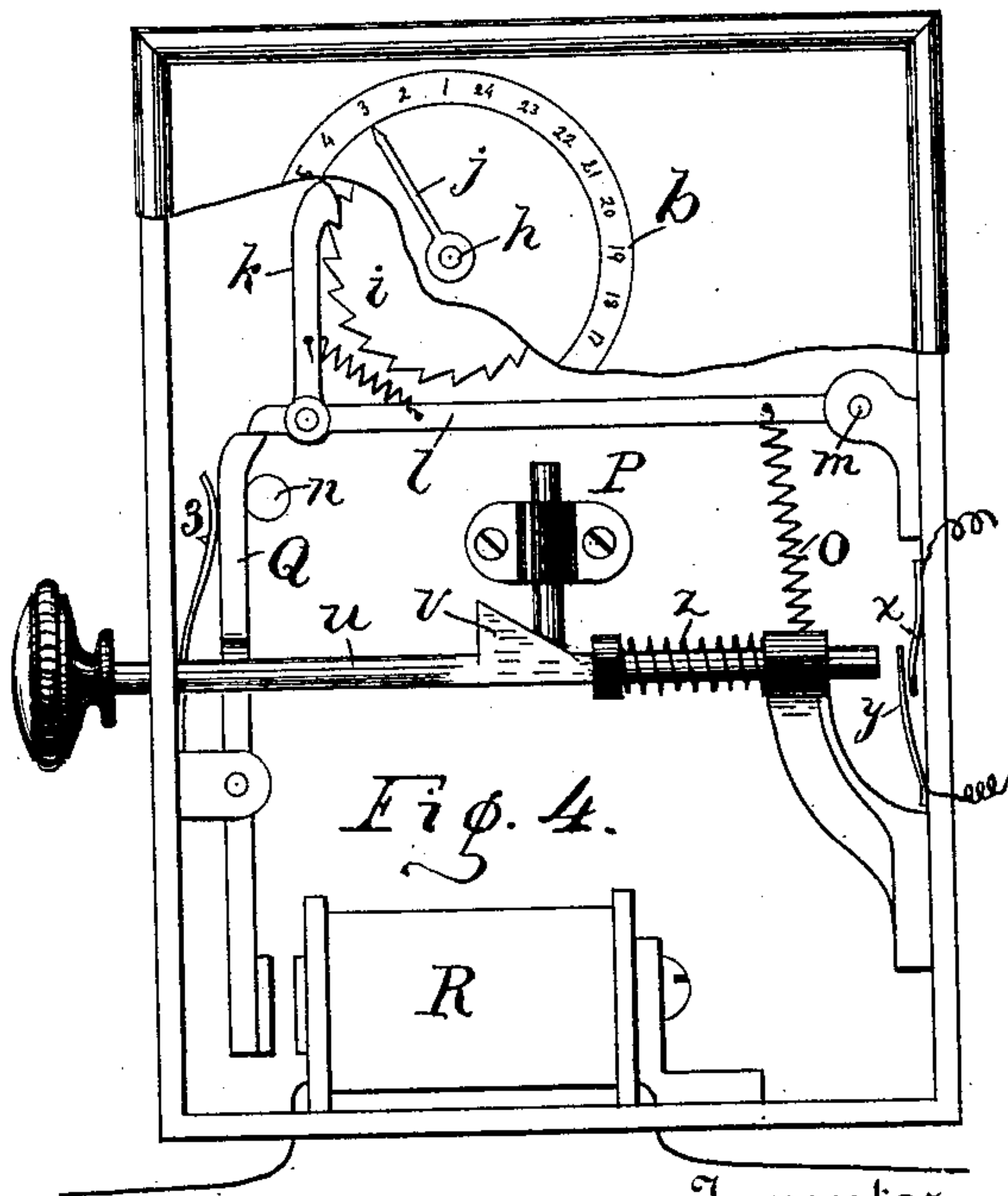
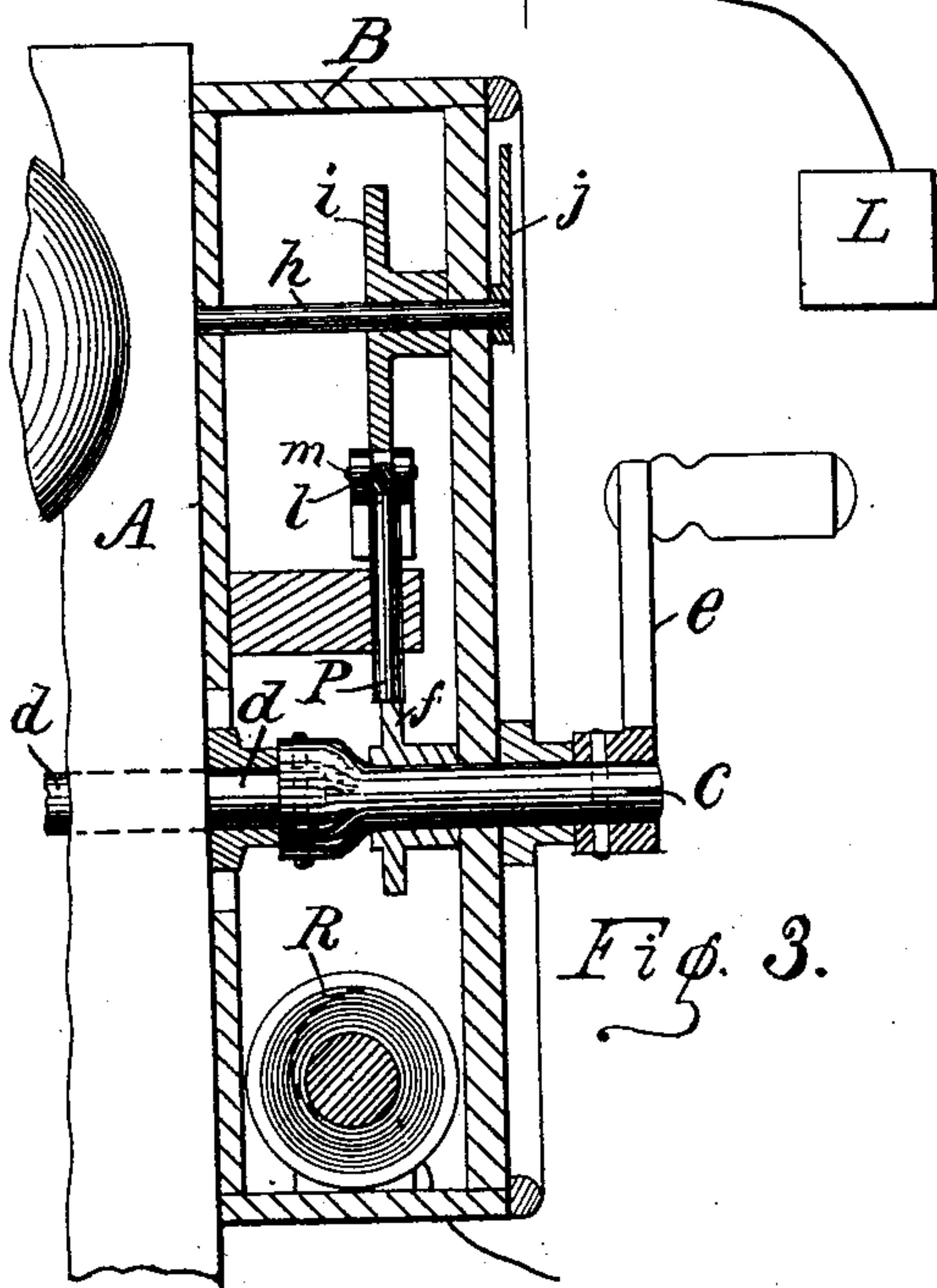
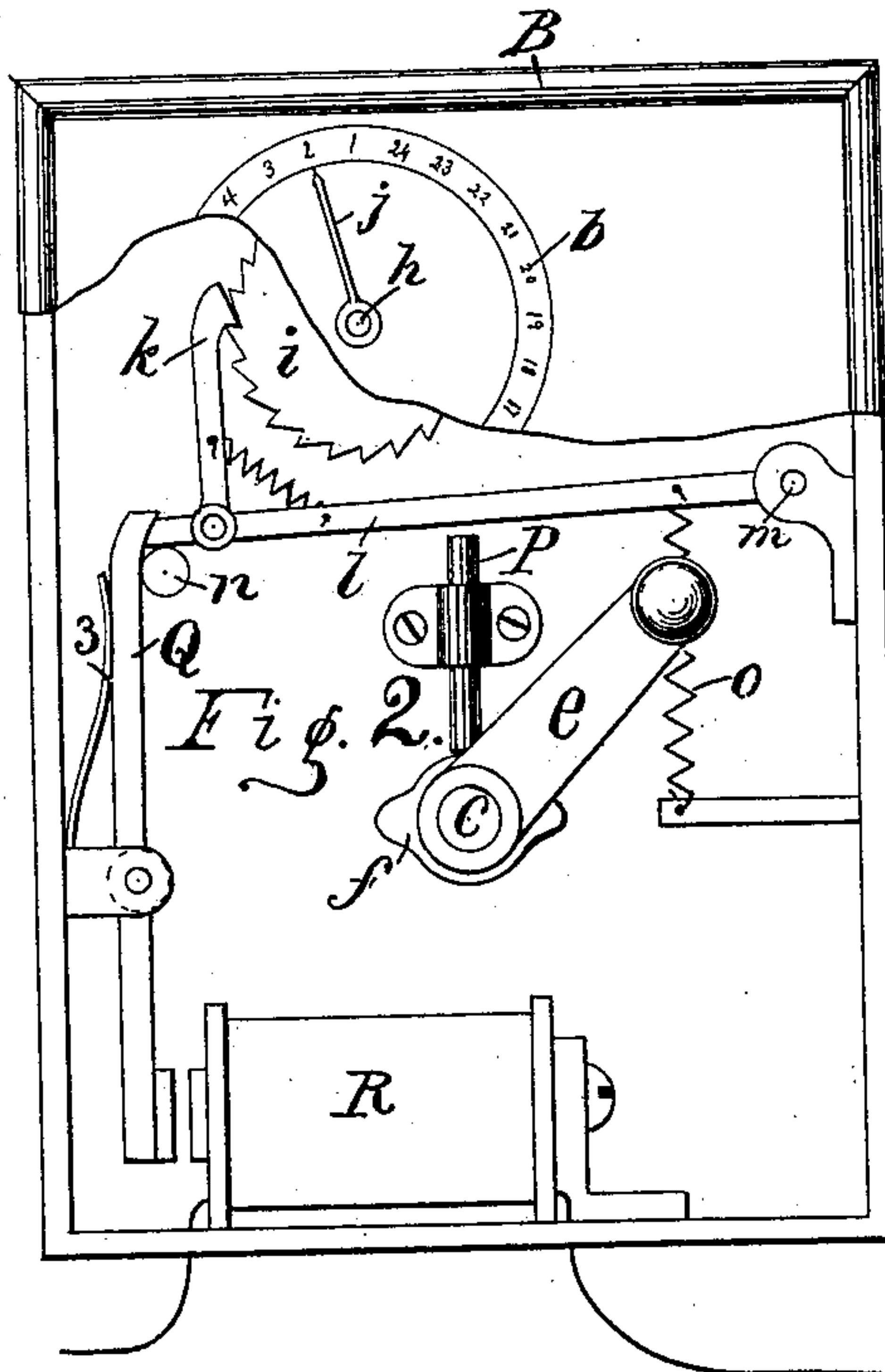
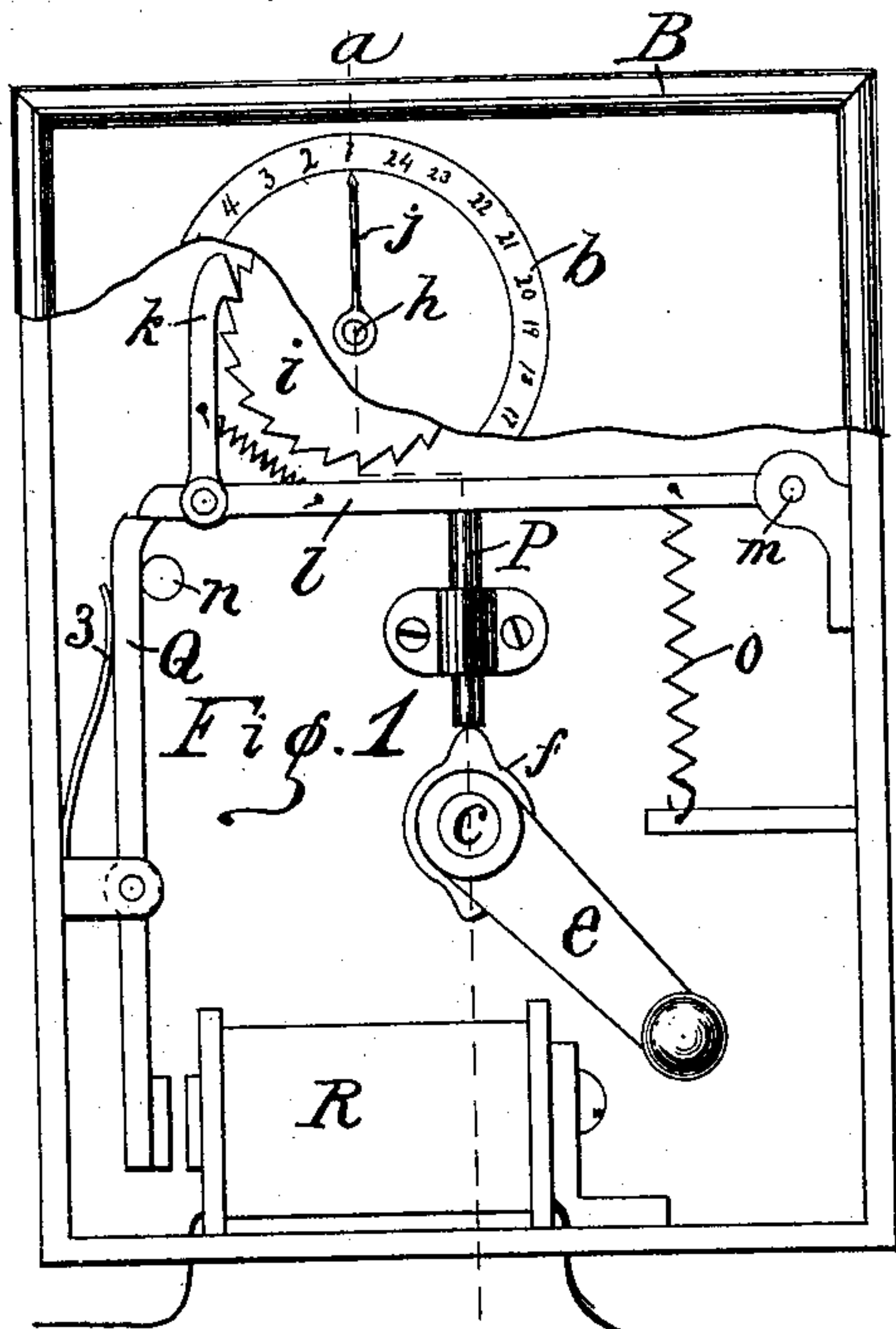


(No Model.)

C. WITTENBERG.
TELEPHONE REGISTER.

No. 359,307.

Patented Mar. 15, 1887.



Witnesses

O. P. Hood.
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UNITED STATES PATENT OFFICE.

CHARLES WITTENBERG, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO EDWARD G. CORNELIUS, OF SAME PLACE.

TELEPHONE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 359,307, dated March 15, 1887.

Application filed July 28, 1886. Serial No. 209,283. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WITTENBERG, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in Telephone-Registers, of which the following is a specification.

My invention relates to an improvement in a telephone-register for which I have made an application for a patent, which application was filed April 19, 1886, Serial No. 199,362, and was allowed July 7, 1886. In said application a registering mechanism is shown and described as located at a telephone-station, and wholly controlled by the operator at the central station or exchange with which such telephone-station is connected by means of an electro-magnet which forms a part of the electric circuit connecting the telephone with the exchange-station.

The object of my present improvement is to provide means whereby the act of signaling the exchange from the telephone-station shall automatically operate to set the actuating-lever of a registering mechanism preparatory to carrying forward the register one point, which set mechanism shall only be released and the register thereby carried forward by an electric impulse sent from the central station through the line.

The accompanying drawings illustrate my invention.

Figure 1 is a front elevation showing a portion of the front of the case removed and the actuating-lever of the register set ready to carry the index-hand forward one point. Fig. 2 is a front elevation showing the position of the parts when the actuating-lever of the register has been released and the register carried forward one point. Fig. 3 is a section through *a*, Fig. 1. Fig. 4 represents a modification of my device as applied to a different signaling device, in which the central station is called by means of a push-bar operating to close the call-circuit.

A represents the magneto-generator in common use for calling the central exchange-office in a telephone system.

B is a case adapted to be secured to the generator-case, containing the registering mechanism,

and a shaft, *c*, mounted so as to revolve in suitable bearings, and arranged to form an extension of the driving-shaft *d* of the generator. A crank, *e*, and a cam, *f*, are secured to shaft *c*.

The register is of the step-by-step form, comprising the shaft *h*, carrying the ratchet-wheel *i* and index-hand *j*, the pawl *k*, pivoted to the actuating-lever *l*, and arranged to engage the ratchet-wheel, and a dial-plate, *b*. The actuating-lever *l* is pivoted to the case at *m*, and is drawn downward against a stop, *n*, by a spring, *o*.

P is a sliding bar arranged beneath the actuating-lever *l* to rest on the face of cam *f*, so as to be raised by the turning of the cam and shaft *c*, and to thereby raise the actuating-lever.

Q is a catch-lever pivoted to the case at *r*, and having its upper end held normally forward by a spring, *3*, so as to engage and support the actuating-lever when raised.

R is an electro-magnet, the helix of which forms a part of the electric circuit in which the subscriber's telephone and the central exchange-station *L* are located. The lower end of lever *Q* forms or carries an armature for the electro-magnet.

The operation of my device is as follows: Shafts *c* and *d* are turned by means of the crank *e*, thus putting the magneto-generator in operation, and operating the call mechanism at the central station in the usual well-known manner. Cam *f*, turning with shaft *c*, raises the sliding bar *P* and the actuating-lever *l* of the register until the free end of said lever is caught and held by the upper end of the catch-lever *Q*. Pawl *k* is thus carried forward over one tooth of the ratchet-wheel *i*. The bar *P*, being held by the force of gravitation against the face of the cam, recedes from the actuating-lever *f* as the cam is further turned, thus leaving the lever wholly supported by the catch-lever *Q*. The subscriber having called for a connection with another subscriber and the operator at the central station having found that the desired connection can be made, said operator connects the circuit *t*, in which the electro-magnet *R* is comprised, with the "call-circuit" at the exchange, thus sending a strong electric impulse to the magnet, drawing to the

magnet the lower end of lever Q, and releasing the actuating-lever I, which is drawn down by the spring o, thus turning the ratchet-wheel, its shaft, and the index-hand forward one point and registering at the subscriber's station the call and use of the telephone. In case the desired connection cannot be made, the operator at the central station does not send the current to the magnet and the register is not operated, the actuating-lever remaining set and unaffected by any future call until the desired connection has been made. In the modification shown in Fig. 4 bar P is raised and the actuating-lever set by means of the push-bar u, which carries a wedge-shaped projection, v, arranged beneath the bar P, the bar being pushed inward to bring together the terminals x y of a battery-circuit for the purpose of operating a signaling mechanism at the central station, and being returned to its normal position by the spring z.

By the use of my device the act of registering the use of the telephone at the subscriber's station becomes the joint act of the subscriber, who by the act of signaling the central station sets the actuating-lever of the register, and the operator at the exchange, who releases the actuating-lever and thereby operates the register, which act can only be performed while the subscriber's telephone is in circuit with the central station.

I claim as my invention—

1. In a system for registering the number of times that a telephone is used, the combina-

tion at a subscriber's station, with the signaling mechanism of the telephone, of a counting-register, intermediate mechanism connecting said register and said signaling mechanism, whereby the actuating-lever of the register is set preparatory to moving the register-index forward one point by the movement of the signaling mechanism, means for retaining said lever when set, means for automatically moving said lever when released, and an electro-magnet in the same electric circuit with the telephone and arranged to release the actuating-lever of the register from its retaining mechanism, whereby each movement of the registering mechanism becomes the joint act of the user of the telephone at the subscriber's station and the operator at the exchange-station, substantially as described.

2. In a telephone-register, the following elements, namely: a shaft arranged to revolve, a cam secured to said shaft so as to revolve therewith, a registering mechanism having an actuating-lever arranged to be moved in one direction only by the rotation of said cam, a catch-lever arranged to retain said actuating-lever when moved by the cam, and an electro-magnet arranged to move said catch-lever so as to release the actuating-lever, all combined substantially as specified.

CHARLES WITTENBERG.

Witnesses:

H. P. HOOD,
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