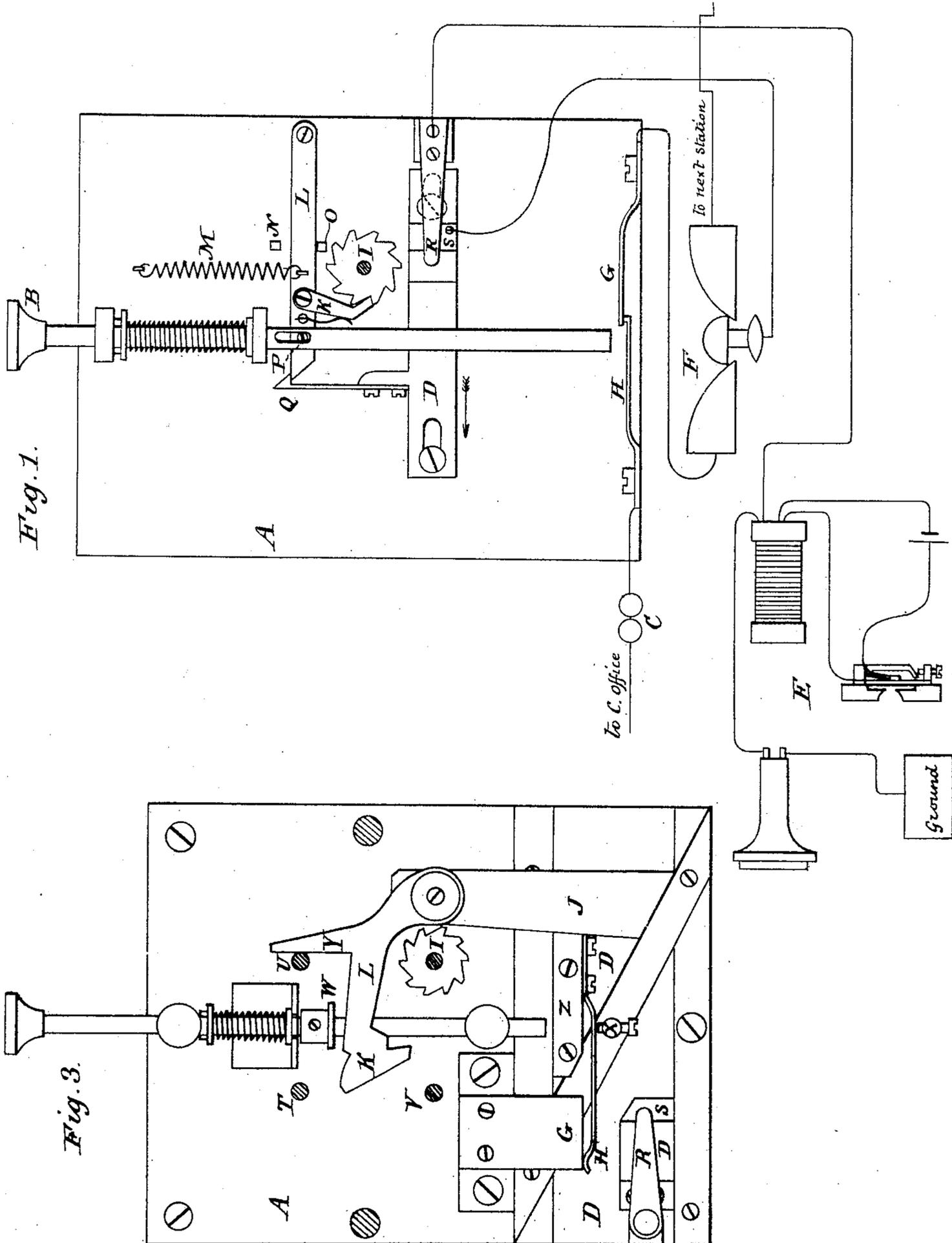


S. TAINTER.

Telephone Call Register.

No. 229,495.

Patented June 29, 1880.



Witnesses:
 Philip Maurer
 C. J. Hedrick

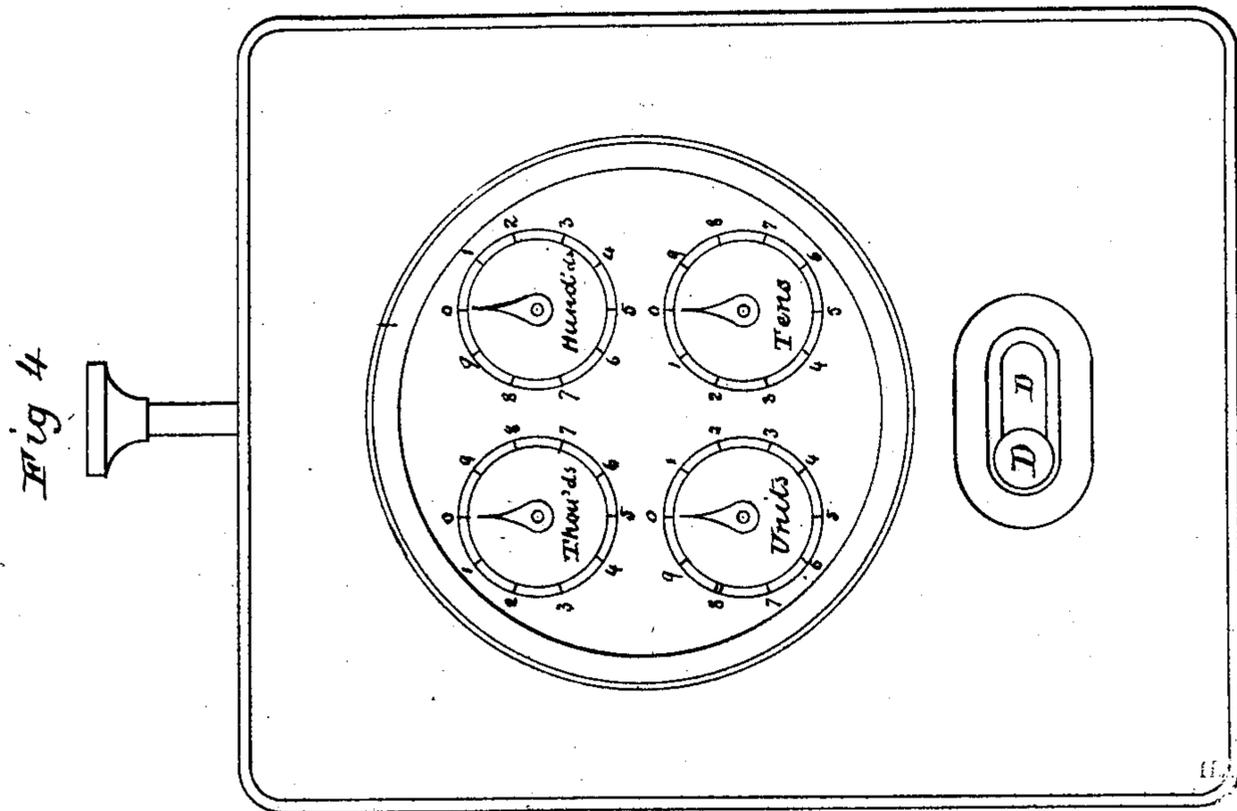
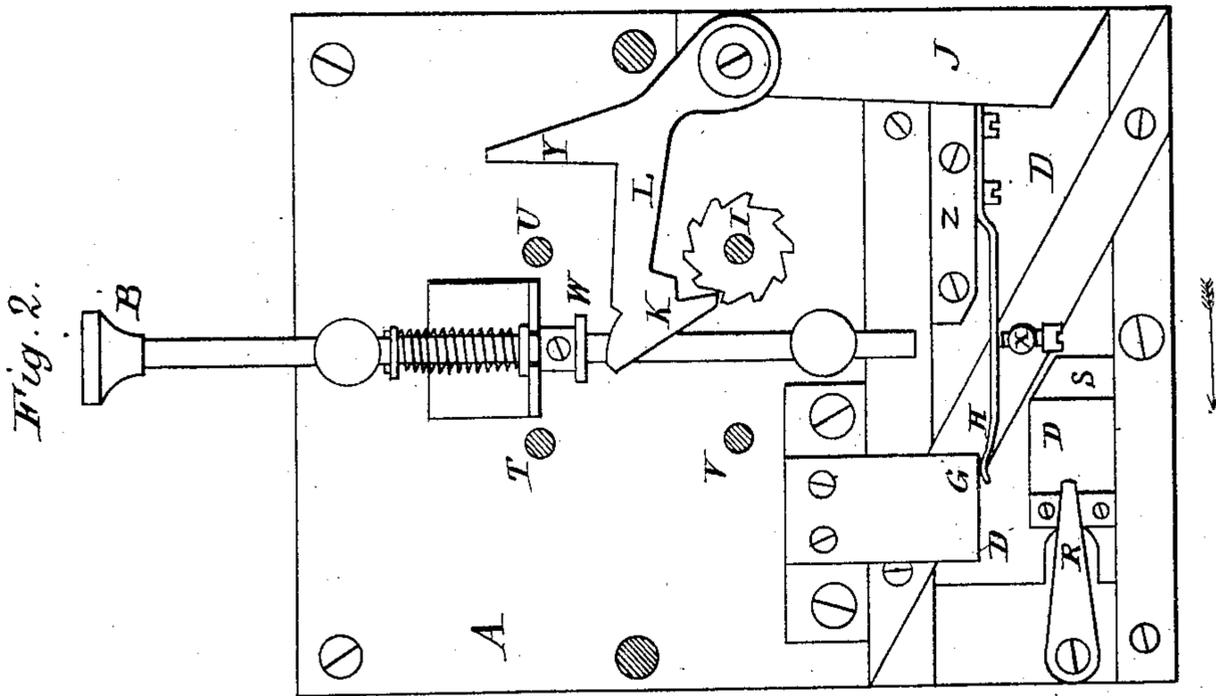
Inventor
 Sumner Tainter
 by A. Pollok
 his attorney.

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UNITED STATES PATENT OFFICE.

SUMNER TANTER, OF WATERTOWN, MASSACHUSETTS.

TELEPHONE CALL-REGISTER.

SPECIFICATION forming part of Letters Patent No. 229,495, dated June 29, 1880.

Application filed March 24, 1880. (No model.)

To all whom it may concern:

Be it known that I, SUMNER TANTER, of Watertown, State of Massachusetts, have invented a new and useful Improvement in Telephone Call-Registers, which invention is fully set forth in the following specification.

It is the usual custom of telephone companies and administrations to make a fixed charge for connection with the central office of a telephone-exchange, which is based upon the average cost to the company or administration of each subscriber, and not upon the amount of service performed for them. This is found to operate unequally upon the subscribers, as a person who seldom uses his telephone is charged as much as one who employs it constantly in his business.

A means whereby a telephone company or administration may ascertain the exact amount of service performed for each subscriber is a great desideratum.

The object of my invention is to provide a means whereby it may be possible to ascertain the number of times the telephone has been used in each subscriber's office at the call of that subscriber. For this purpose I combine with the call arrangement of a telephone station a registering apparatus and switch, so that the first operation of the call arrangement to send a signal causes the operation of the registering device, but the subsequent operation of the call arrangement to repeat the signal fails to effect it until the switch has been moved. The switch is so arranged that it is impossible to use the telephone for the purpose of conversation without moving it from its normal position, and the motion of the switch sets the actuating portion of the registering apparatus so that it can again be operated by the call apparatus.

My invention further consists in combining with the call arrangement and registering device a stop-piece attached to and moving with the switch, so as to prevent the subscriber from calling the central office while the telephones are in position to be used.

The telephone call-registers, like gas-meters, can be inspected periodically for the purpose of ascertaining the number of times the tele-

phones have been used at the call of each subscriber.

In order that the nature of my invention and its mode of operation may be fully understood by those skilled in the art, I shall show and describe it more in detail, reference being made to the accompanying drawings.

Figure 1 shows one form of my improved call-register combined with the usual appointments of a telephone station.

A is the portion of the call-register containing my invention; B, the push-knob used for calling the central office; C, the call-bell by which a subscriber is called; D, the register-switch; E, telephone and transmitter; F, the secrecy-switch, by which the privacy of telephonic communication is obtained.

In the telephone system here illustrated a voltaic battery at the central office is placed in circuit with the line and instruments shown in the drawings. The depression of the push-knob B breaks the circuit by separating the contact-pieces G H, thereby causing a signal at the central office.

I is a ratchet-wheel for operating a registering device, of convenient or usual construction, which is not shown in the drawings, as in itself it forms no part of my present invention. The ratchet-wheel I is operated by a pawl, K, pivoted to a lever, L, which is supported by a spring, M, and works between two stops, N O. It carries a pin, P, working in a slot in the push-knob B, and it is held against the stop O by means of a catch, Q, attached to the switch D. The extremity, R, of a contact-spring rests upon an insulated portion of the switch D.

The motion of the switch in the direction indicated by the arrow brings the point R into metallic contact with S, so that the telephone can be used, and at the same time releases the lever L, which then rests against the stop N. Under these circumstances the depression of the push-knob B to send a signal causes the depression of the lever L and pawl K, thus turning the ratchet-wheel I and causing the operation of the registering device. The lever L returns to the stop N on account of the action of the spring M.

If the switch D is retained in this position the registering device will be operated every time the push-knob B is depressed. If the switch is restored to the position shown in the diagram, Fig. 1, the catch Q will be under the end of the lever L, and the lever will be in contact with the stop N. Upon depressing the push-knob B the lever L will be depressed also, thus causing the operation of the registering device; but when the lever L touches the stop O it is caught by the catch Q, as shown in the diagram, Fig. 1, and retained in that position, so that the subsequent operation of the push-knob B fails to affect the registering device until the motion of the switch D in the direction of the arrow, for the purpose of enabling the subscriber to use his telephone, releases the lever L and restores the registering apparatus to a position in which it can be acted upon by the push-knob B.

It will thus be seen that the telephone call-register shown in Fig. 1 is set by a single motion of the switch D.

Figs. 2 and 3 illustrate the apparatus embodying the invention whereby the registering device is set by a to-and-fro motion of the switch and the call apparatus cannot be worked while the switch is in the position for using the telephones.

Similar letters in all the diagrams indicate similar parts.

In the improved form of apparatus shown in Figs. 2 and 3 the pawl K and lever L are combined to form one piece, which is pivoted by means of a screw and elastic washer, to an upright piece, J, rigidly attached to the switch D, and is carried with it.

T, U, and V are the axes upon which turn the toothed wheels composing a portion of the registering apparatus. Upon depressing the push-knob B, Fig. 2, a projecting portion, W, of the push-knob strikes the pawl K, which turns the ratchet-wheel I, thus causing the operation of the registering device; and then the lower extremity of the push-knob B forces the spring H against the stop X, thus breaking the main circuit by separating the contact-pieces G H.

It will be observed that the peculiar form of the inner edge of the pawl K enables it to fit two of the teeth of the ratchet-wheel I, so as to prevent the ratchet-wheel from being moved by more than one tooth at a time, however forcibly the push-knob B may be depressed.

The combined lever and pawl L K remains in the position in which it is placed by the push-knob B, on account of the friction produced at its pivot by the action of the elastic washer and upright piece J, and the subsequent operation of the call arrangement B H G fails to affect the registering device until the lever K L has been restored to the position shown in Fig. 2. In order to do this it is necessary to move the switch D as indicated by the arrow, and then to restore it to its normal position. (Shown in Fig. 2.)

The process of resetting the registering apparatus will be understood by comparing Figs. 2 and 3.

When the lever L K has been depressed by the push-knob B (see Fig. 2) the pawl K fits the teeth of the ratchet-wheel I very closely and the spur Y leans forward toward the axis U. The motion of the switch D, as shown by the arrow, Fig. 2, causes Y to come in contact with U, and the further operation of the switch in the same direction causes the elevation of the pawl K, as in Fig. 3, so that it clears the top of the next tooth of the ratchet-wheel I when the switch D is moved back into its original position, as shown in Fig. 2.

The switch D carries a stop-piece, Z, so that when the switch D is in the position shown in Fig. 3 the push-knob B cannot be depressed.

Fig. 4 is a front elevation of the call-register, showing the dials, index-hands, &c., of the registering device and the actuating-knob of the switch D.

I do not describe the operation of the telephone and transmitter E and secrecy-switch F, Fig. 1, as such is well known, and as any arrangement of telephones may be combined with my improved call-register. It is only necessary, for the purposes of my invention, that the spring R, when in contact with S and while the telephones are being used, form a portion of the main circuit, so that it is impossible to use the telephone excepting when the switch is in such a position that the points R S are in metallic contact with each other.

I do not claim, broadly, the combination of a registering device with a telephone call arrangement.

What I do claim, and desire to secure by Letters Patent, is—

1. The combination, with an electrical call apparatus and a telephone, of a numbering-register, a switch, and electrical connections, substantially as described.

2. In an electrical system, a registering apparatus combined, substantially as described, with a call apparatus, a movable piece or switch, and devices connected with said piece or switch for setting the actuating portion of said register, as set forth.

3. A counting-register combined, substantially as described, with a telephonic apparatus comprising a call, a telephone, a telephone-switch, and means, as indicated, for locking the call while said switch is in position for connecting in the telephone, as and for the purpose set forth.

4. The combination, with a call apparatus and a telephone, of a telephone-switch and device connected therewith for locking the call apparatus when said switch is in position for connecting in the telephone, substantially as described.

5. In a telephone call-register, the combination, with the registering device, of an actuator which will remain in any position in which it is placed, substantially as described.

6. The combination, with a telephone call-register, of a switch and stop-piece, substantially as herein shown and described.

5 7. In a telephone call-register, the combination of a spur with the actuator of a registering device, substantially as herein shown and described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SUMNER TAINTER.

Witnesses:

PHILIP MONRO,
C. J. HEDRICK.