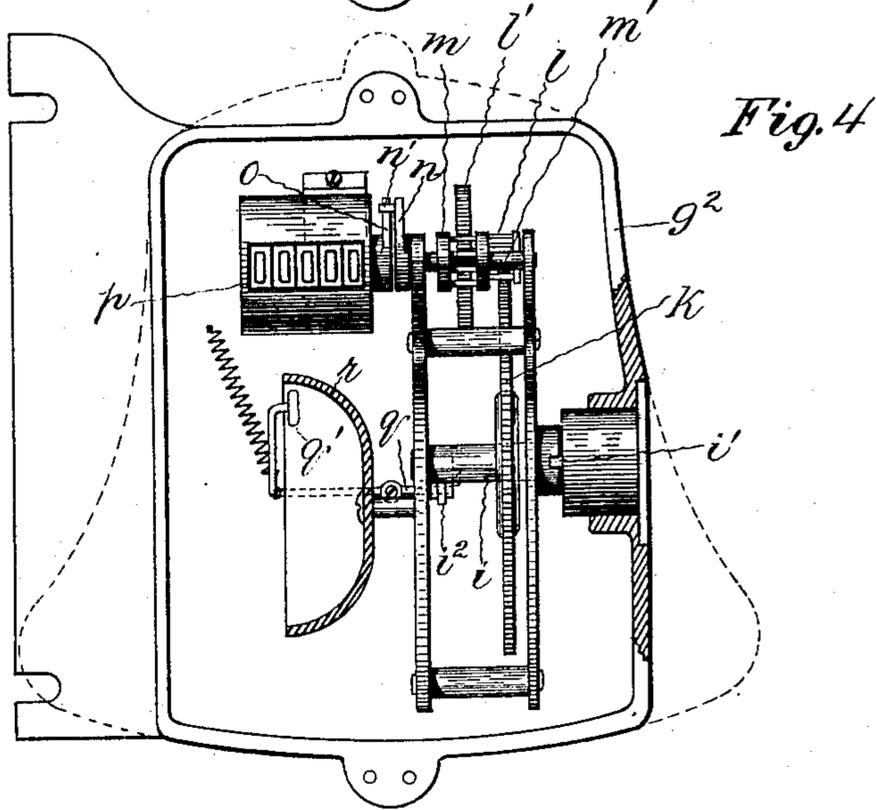
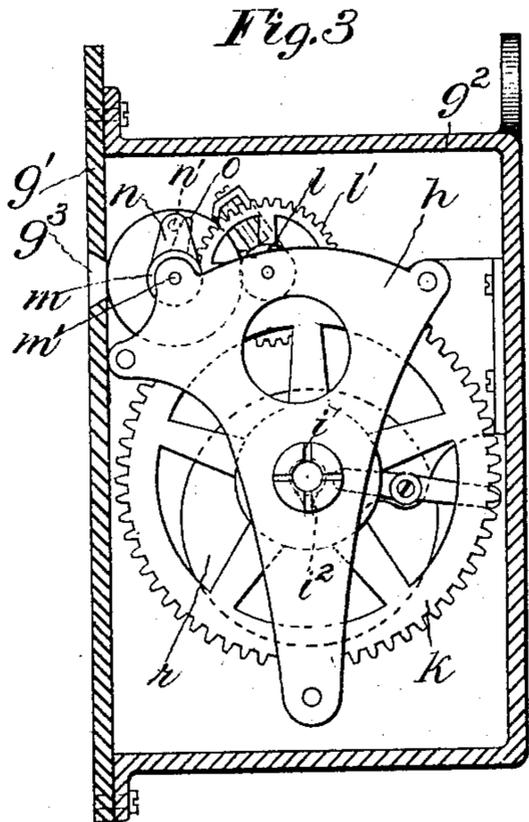
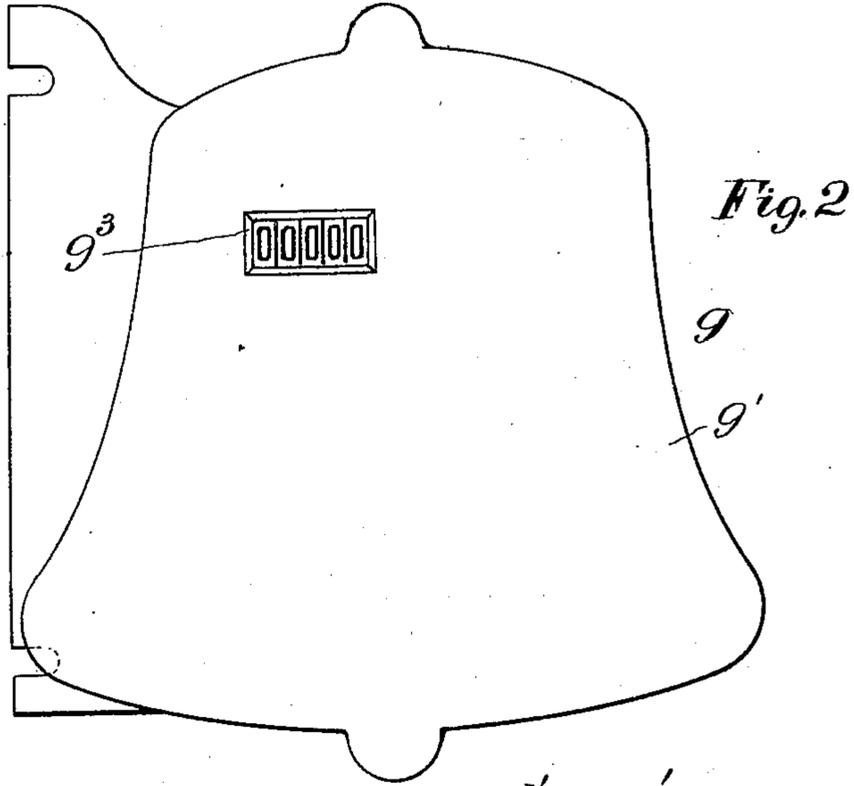
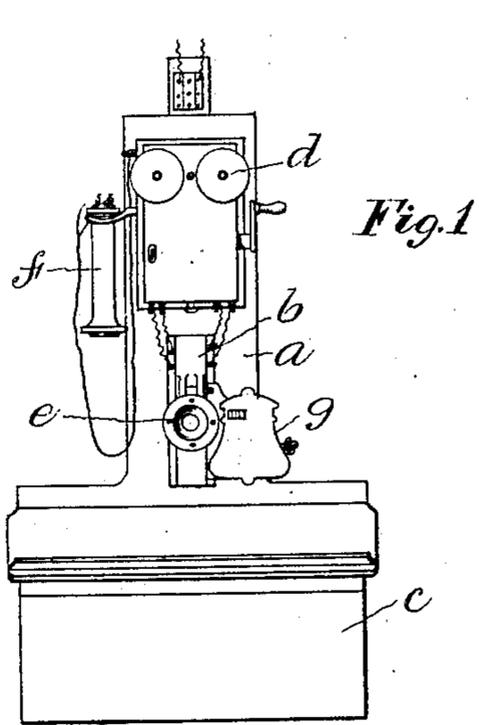


W. GRAY.  
TELEPHONE CALL REGISTER.  
APPLICATION FILED SEPT. 17, 1898.

NO MODEL.



Witnesses:  
 William H. Parker  
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# UNITED STATES PATENT OFFICE.

WILLIAM GRAY, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE GRAY TELEPHONE PAY STATION COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

## TELEPHONE-CALL REGISTER.

SPECIFICATION forming part of Letters Patent No. 725,244, dated April 14, 1903.

Application filed September 17, 1898. Serial No. 691,174. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GRAY, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Telephone-Call Registers, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide a device in which a register of each call or use of the device shall be made, and more especially one in which each call shall be designated on a single register.

To this end my invention consists in the device as a whole, in the combination of parts, and in details and their combination, as hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a view in front elevation of a set of telephone instruments embodying my invention. Fig. 2 is a front view, on enlarged scale, of the register-box. Fig. 2 is a detail view in lengthwise section through said box on enlarged scale. Fig. 4 is a front view in section through the box.

The device herein illustrated and described is a modification of the device forming the subject-matter of an application filed concurrently herewith, the mechanism being constructed to designate each call in a single position or on a single register.

The copending application is entitled "Telephone Call Register" and bears filing date of September 17, 1898, with Serial No. 691,173, on which issued Patent No. 654,112, dated July 17, 1900.

In the accompanying drawings the letter *a* denotes the backboard, *b* the coil-box, *c* the battery-box, *d* the magneto-bells, *e* the transmitter, and *f* the receiver, of a set of telephone instruments arranged in the usual manner.

The letter *g* denotes the register-case. This case consists of a cover *g'* and a box *g''*, the latter being secured to the coil-box or part supporting the transmitter-arm. The box *g''* is constructed to make intimate contact with the coil-box *b* or that part of the telephone to which the transmitter is secured.

The letter *h* denotes a frame bearing the operating parts of the device and secured to the box *g''* in any desired manner, in the form herein shown as by means of screws. An arbor *i* is secured in the frame, one end being adapted to receive a key, this arbor being provided with engaging means *i'*, in the form shown a slot for the reception of the end of a key formed to fit such engaging means. A gear-wheel *k* is secured to this arbor and meshes with a pinion *l* on an arbor, which also bears a gear *l'*, in mesh with a pinion *m* on the arbor *m'*, mounted in the frame. The arbor *m'* bears a crank *n*, having a crank-pin *n'*, adapted to engage the arm *o* of a register *p*, mounted on the frame in any desired manner.

It is to be noted that the register-spindle is operated by the crank *n* and pin *n'*, which may well be called a "follower." Thus the register-dials will always be carried forward even if the arbor *i* is moved accidentally a partial revolution, for if the arbor is moved in the wrong direction the register will retain its proper record.

The arbor *i* bears a trip-pin *i''*, adapted to operate a hammer-arm *q*, bearing a hammer *q'*, supported in a position to sound a gong *r*. This gong may be mounted in any suitable manner on the frame or on the box *g''*.

It is to be noted that with the arrangement of the register and operating mechanism shown herein there are many advantages. First, it permits the use of a register of the cyclometer class, of which there are many of simple construction which can be obtained at a very small cost, thus avoiding the necessity of a specially-designed and costly register. A further advantage resides in what is practically a double-signal transmitter to the central office, the first a sharp buzz, caused by the speed mechanism intermediate of the register and key, and the second the sharp ring of the gong. With these two peculiar signals it would be almost impossible for a user to imitate the signal and deceive the central office, as could be easily done if a single gong is used. In fact, the first signal, or the buzz, notifies the central office that the register is being operated, and the gong signifies that the register has been turned a dis-

tance requisite to record the use of the instrument. As described above, the register is not positively connected with the driving mechanism except as it is driven forward by the follower *n*. It is evident that a register may be easily and quickly removed and a new one inserted in its place without interfering with the other mechanism of the structure.

10 In the operation of the device the central office is called in the usual manner and the desired connection asked for. The key is inserted in engagement with the arbor *i* and a turn given, which turn sounds the gong and indicates to the central office the fact that the call has been registered, the register acting before the gong has sounded. This turn of the key moves the register a one-step movement forward, which movement is indicated by the register, which is located in an opening *g*<sup>3</sup> in the front of the register-box. The register will thus indicate at any time the amount of calls which have been made, this being apparent at a glance, and such calls paid for by the subscriber at the proper time.

25 By the use of the mechanism described herein it is possible to use an ordinary cyclometer, such as is to be found in the market, for registering the use of the instrument. These

cyclometers are ordinarily so constructed that several turns of the operating-shaft are required to indicate a change of one step of the units-dial of the register. 30

I claim as my invention—

1. In combination in a telephone-call register, a register including dials and means for actuating them, an arbor adapted to receive a key, gearing between said arbor and the actuating means of the register-dials adapted to move said actuating means at a speed greater than the speed of the arbor whereby a buzzing signal is secured, and a gong adapted to be sounded by the movement of the arbor and gearing after the buzzing signal has been sounded. 40

2. In combination in a telephone-call register, a register, an arbor adapted to receive a key, operative means between the arbor and register including mechanism for operating the latter and sounding a primary signal and a secondary signal adapted to be sounded by the movement of the arbor after the primary signal has been sounded. 45 50

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Witnesses:

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