No. 635,195. Patented Oct. 17, 1899.

J. SHANNON.

TELEPHONE CALL REGISTER.

(Application filed Feb. 23, 1899.)

(No Model.)

Fig. 1.

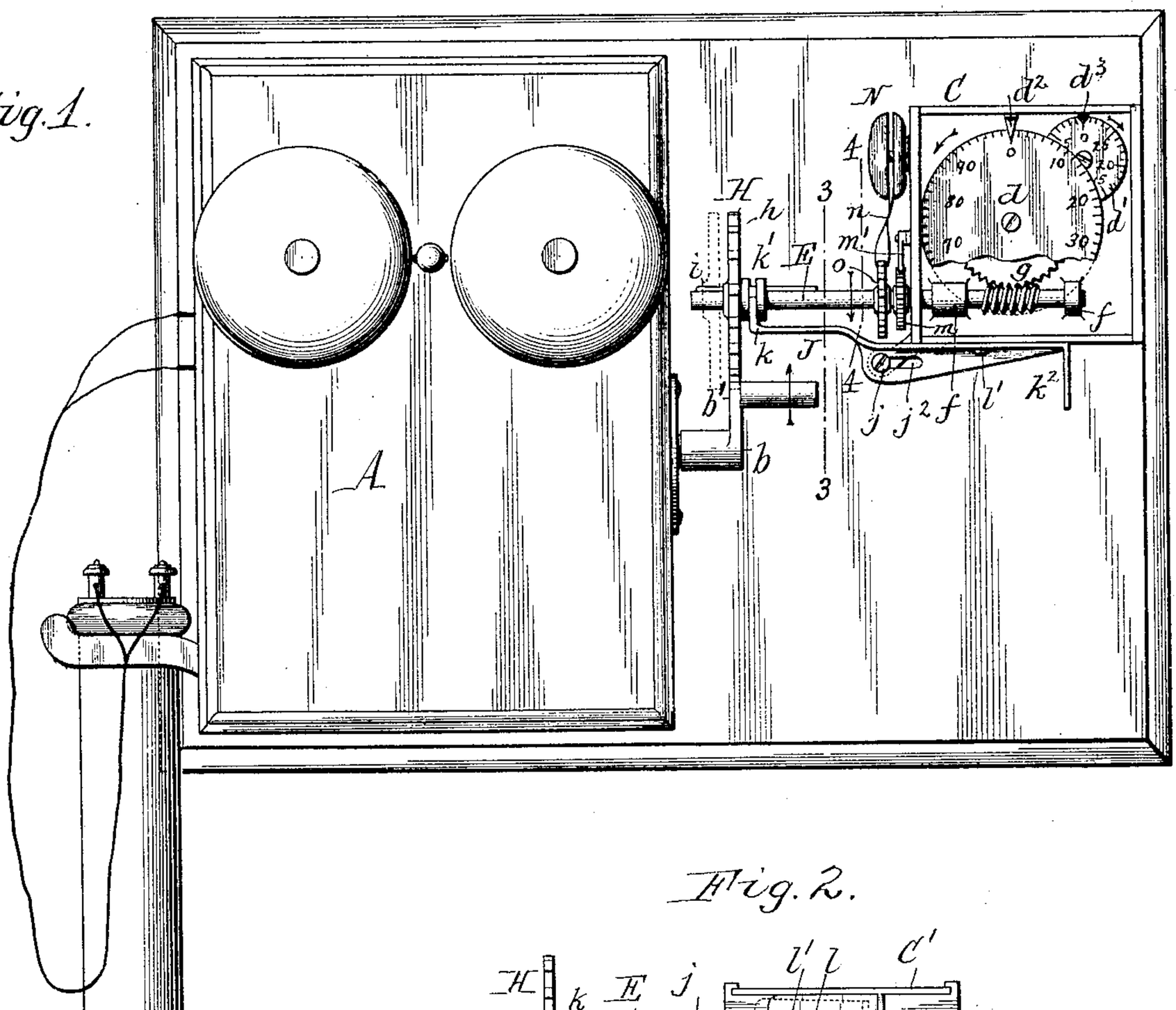


Fig. 2.

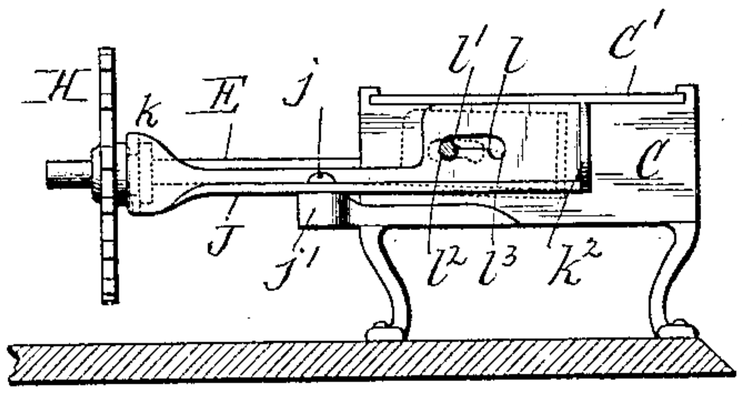


Fig. 3.

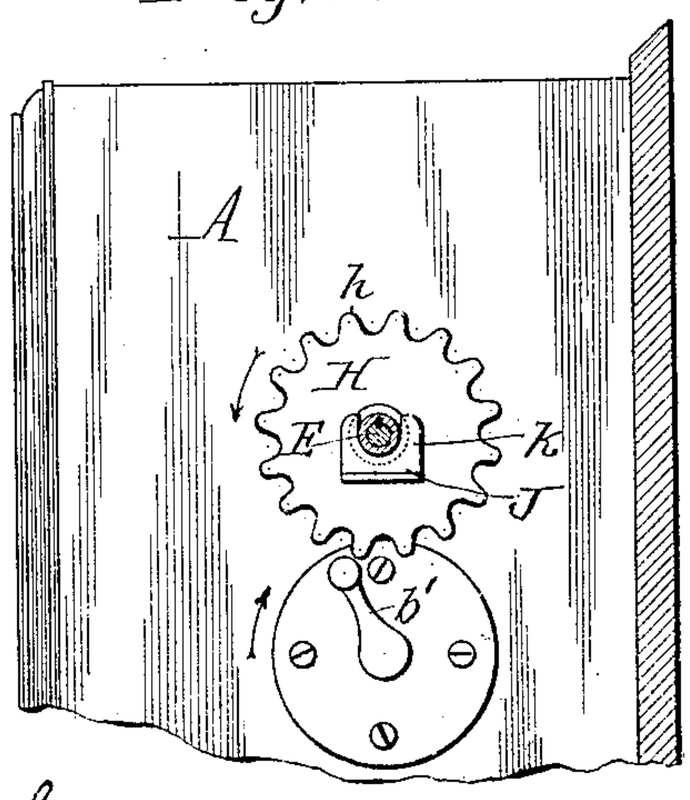
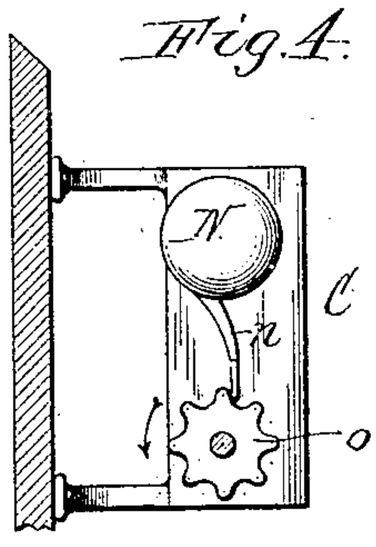


Fig. 4.



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TELEPHONE-CALL REGISTER.

SPECIFICATION forming part of Letters Patent No. 635,195, dated October 17, 1899.

Application filed February 23, 1899. Serial No. 706,534. (No model.)

To all whom it may concern:

Be it known that I, JOHN SHANNON, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Telephone-Call Registers, of which the following is a specification.

This invention relates to the registering devices employed in connection with subscribers' telephones for registering the number of calls or messages used by the subscriber and furnishing a check upon the statement rendered monthly or at other intervals by the telephone company.

The object of my invention is the provision of a simple register of this character which can be cheaply produced and readily applied to a telephone without interfering with any of its parts or impairing its efficiency.

In the accompanying drawings, Figure 1 is a sectional front elevation of my improved call-register applied to a telephone. Fig. 2 is a bottom plan view of the register, showing the locking device of the shifting bar. Fig. 3 is a transverse vertical section in line 3 3, Fig. 1, looking toward the telephone-box. Fig. 4 is a similar section in line 4 4, Fig. 1, looking toward the register.

Like letters of reference refer to like parts in the several figures.

A is the box or case of a telephone of the well-known kind, having a generator-shaft *b* extending through one side of the case and provided with a hand-crank *b'*.

The registering mechanism is arranged on the same side of the telephone-box as the crank *b'* and inclosed by a suitable case C. The registering mechanism itself forms no part of my invention and may be of any suitable construction, that shown in the drawings consisting of a units-wheel *d*, which bears graduations running from "0" to "99," and a hundreds-wheel *d'*, which is turned the distance of one graduation for every complete turn of the units-wheel in a manner common to such registers. Additional counting-wheels may be employed, if desired.

*d*² *d*³ are pointers secured to the case opposite the top of the registering-wheels. The case C has a transparent or apertured front plate C', through which the registering-wheels are visible.

E is a horizontal worm-shaft or feed-screw journaled in bearings *f*, arranged on the case C and engaging with a worm wheel or rim *g*, formed on or secured to the units-wheel *d*. This shaft is held against endwise movement in its bearings, so that the units-wheel is turned by the rotation of the shaft. This shaft passes through the side of the case C and extends to or nearly to the adjacent side of the telephone-box. To the projecting portion of the shaft is applied an upright actuating or trip wheel H, having radial teeth or arms *h*, which are adapted to stand in the path of the outer end of the crank-arm *b'*, so that upon turning said crank it strikes one of the teeth of the wheel and turns the same and the actuating-shaft, thereby intermittently rotating the units-wheel of the register and registering the call. The teeth of the trip-wheel are preferably so arranged and the threads of the worm-shaft E are made of such pitch that the units-wheel is turned the distance of one graduation by two turns of the hand-crank, so as to give a ring or signal of sufficient duration. The trip-wheel is keyed or splined to the register-shaft E, as shown at *i*, and is capable of sliding laterally thereon, so that it may be shifted inwardly sufficiently to bring its teeth out of the path of the hand-crank *b'*, as shown by dotted lines in Fig. 1, for throwing the register out of gear with the crank. It is desirable to do this in case the central office or exchange neglects to answer a subscriber's call after a reasonable time and he wishes to call again without registering another call.

J is a horizontal shifting bar or slide whereby the trip-wheel H is moved into and out of gear with the said hand-crank of the telephone. This bar is guided on a horizontal pin *j*, which is mounted on a bracket *j'* of the register-case and which passes forwardly through a longitudinal slot *j*² of the bar. The bar is provided at its inner end with an upwardly-extending fork *k*, the jaws of which engage in an annular groove *k'*, formed in the

hub of the trip-wheel, so that the wheel, while free to turn, is compelled to move laterally with the shifting bar. An outwardly-bent lip or thumb-piece k^2 is arranged at the outer end of the shifting bar for manipulating it. The bar is provided at or near its outer end with a horizontal flange or wing having a longitudinal slot l, through which passes a vertical locking-pin l', projecting from the under side of the register-case. This slot is provided in its rear edge and at opposite ends thereof with locking seats or notches l^2 l^3, one or the other of which is adapted to interlock with the pin l' for retaining the shifting bar and the trip-wheel H, connected therewith, in either of their extreme positions. The slot l is so arranged with reference to said locking-pin that when the shifting bar occupies a position between its extreme positions the portion thereof between its guide-pin j and its thumb-piece k^2 is sprung inwardly or toward the rear wall of the register-case by the salient inner edge of the slot riding over the locking-pin l', as shown by dotted lines in Fig. 2. As soon as either of the locking-notches registers with the locking-pin in shifting the bar the deflected arm of the bar springs outward to its normal position, as shown in full lines in Fig. 2, thereby yieldingly retaining said notch in engagement with the locking-pin. The shifting bar is constructed of some metal or material having sufficient elasticity to permit this spring action of its outer arm, steel or brass being suitable for the purpose. The locking-notches l^2 l^3 are preferably curved to facilitate their disengagement from the locking-pin l' upon applying a little force to the shifting bar.

The register is provided with a suitable detent device for preventing backward movement of the counting-wheels, the device shown in the drawings consisting of a ratchet-wheel m, secured to the register-shaft, and a detent-pawl m', pivoted to the case and engaging with the ratchet-wheel.

In order to give a warning or signal to the subscriber after he has turned the hand-crank sufficiently to register a single call, a suitable alarm or indicator is combined with the register. This alarm preferably consists of a bell N, arranged on the inner side of the register-case and having a downwardly-projecting operating-arm n, which actuates the bell-hammer and returns to its normal position after being operated. An ordinary bicycle-bell may be used for this purpose. The operating arm of the bell projects into the path of a tappet-wheel o, secured to the register-shaft in line with said arm and having half as many teeth as the trip-wheel H, so that when the crank b' has been given two complete turns one of the teeth of the tappet-wheel trips the operating-arm of the bell, giving an alarm.

In the ordinary condition of the call-register the trip-wheel H of the register-shaft stands in the path of the crank-arm b', as shown by full lines in Fig. 1, so that upon calling the telephone-exchange said wheel is turned and the call registered, as hereinbefore described. Should the exchange fail to heed the call, the trip-wheel is thrown out of gear with the hand-crank of the telephone by means of the shifting bar J and the exchange rung up again. After obtaining the desired connection the trip-wheel is again returned to its operative position ready to register the next call.

The lock of the shifting bar prevents accidental displacement of the trip-wheel H, and as the lock is formed partly by the bar itself its construction is very simple and adds little to the cost of the register.

As the register is an attachment complete in itself it can be readily applied to existing telephones without affecting the construction or operation of the same.

I claim as my invention—

1. In a telephone-call register, the combination with a registering mechanism having an actuating-shaft, of a trip-wheel splined on said actuating-shaft and capable of sliding laterally thereon, said wheel having teeth adapted to be brought into the path of the ringing-crank of a telephone, for intermittently operating the trip-wheel and the registering mechanism by the turning of said crank, substantially as set forth.

2. In a telephone-call register, the combination with a registering mechanism having an actuating-shaft, of a trip-wheel splined on said shaft and capable of sliding laterally thereon, said wheel being adapted to be moved into and out of the path of the ringing-crank of a telephone, a sliding shifting bar engaging with said trip-wheel and guided on a suitable support, and a locking device engaging with said bar, for retaining the same in position, substantially as set forth.

3. In a telephone-call register, the combination with a registering mechanism having an actuating-shaft, of a trip-wheel splined on said shaft and capable of sliding laterally thereon, said wheel being adapted to be moved into and out of the path of the ringing-crank of a telephone, a horizontally-sliding shifting bar guided between its ends on a suitable support and having its inner arm engaged with said trip-wheel and provided in its outer arm with a longitudinal slot having locking-notches at its ends, and a vertical locking-pin projecting from said support and entering said slot, the slot being so arranged with reference to said locking-pin that the outer arm of the shifting bar is deflected out of its normal position, except when said locking-pin is in engagement with one of said locking-notches, substantially as set forth.

4. In a telephone-call register, the combi-

nation with a registering mechanism and a case inclosing the same, of an operating-shaft for said registering mechanism having an actuating-wheel adapted to be operated from the ringing-crank shaft of a telephone, a gong or bell supported on the register-case and having an operating-arm, and a tappet-wheel mounted on the register-shaft and arranged to trip the operating-arm of said bell, substantially as set forth.

Witness my hand this 14th day of February, 1899.

JOHN SHANNON.

Witnesses:
WILLIAM NORVEL,
CARL F. GEYER.