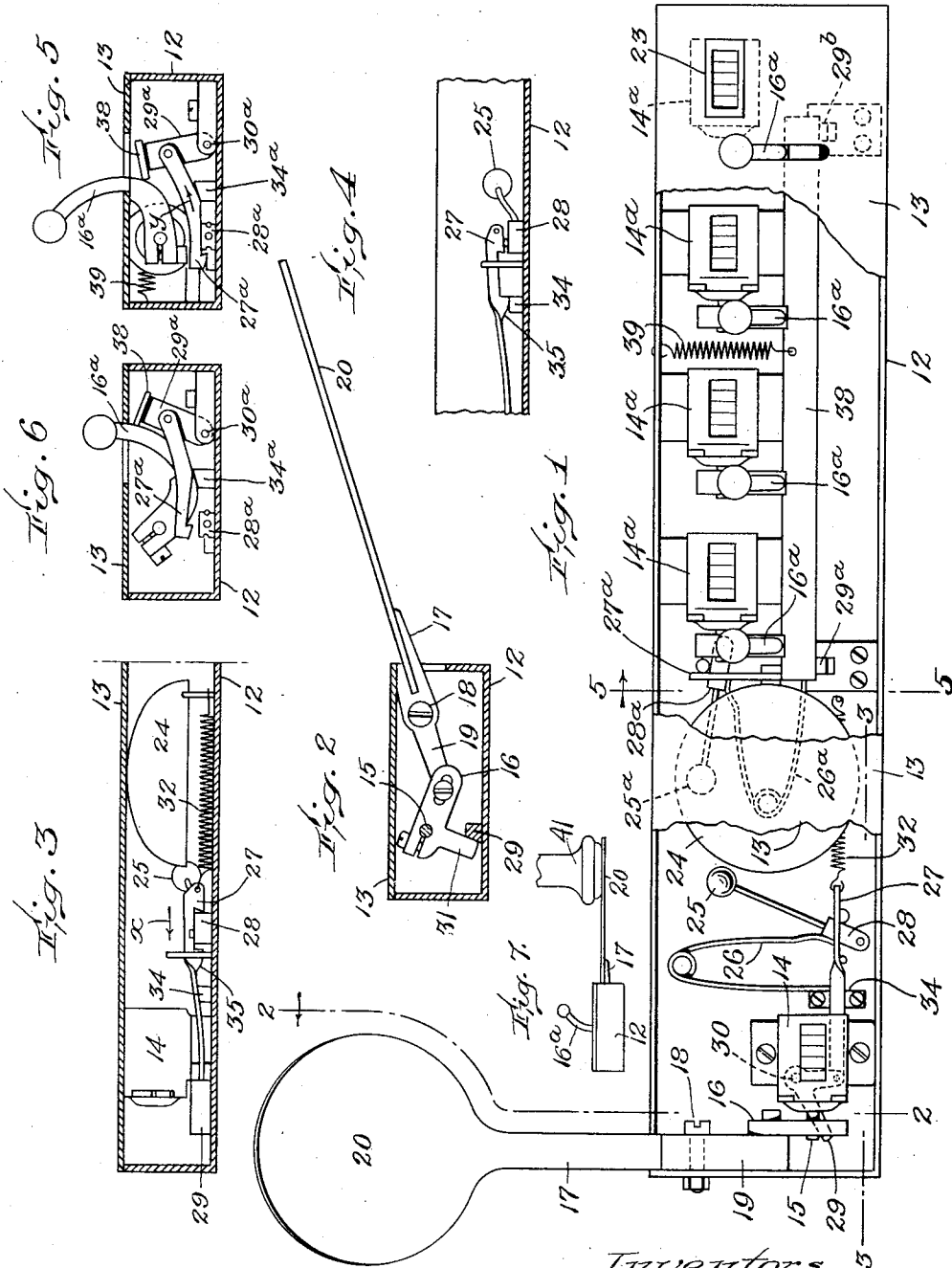


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 TELEPHONE CALL REGISTER.
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UNITED STATES PATENT OFFICE.

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TELEPHONE-CALL REGISTER.

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Specification of Letters Patent. Patented Apr. 28, 1914.

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To all whom it may concern:

Be it known that we, WILLIAM GIBSON BELL and WILLIAM HERBERT VINTO, citizens of the United States, and residents, respectively, of Newton, county of Middlesex, and of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Telephone-Call Registers, of which the following is a specification.

This invention relates to a mechanical device for registering telephone calls, said device having means for independently showing the number of inward calls, the number of toll or long distance calls, and the number of times when the line is reported busy.

The invention is an improvement on the apparatus disclosed by our application for Letters Patent of the United States filed August 28, 1912, Serial No. 717,519, said apparatus including a counter for registering calls made, additional or secondary counters for registering unanswered calls and the like, a lever operatively connected with the first mentioned counter and a support connected with said lever for a telephone element such as a receiver, or the portable receiver-supporting standard forming a part of a desk telephone set, the support being normally held yieldingly in a raised position, and adapted to be depressed by the weight of a telephone element deposited thereon, the depression of the lever operating the accompanying counter.

The present invention has for its object first, to provide a simplified and improved construction of the parts of the apparatus which include the lever, the telephone element support and the connection between the lever and the counter, whereby the number of parts is reduced to the minimum and accuracy of operation is increased, and secondly, to provide means for automatically ringing a bell whenever the registering apparatus is operated.

The invention consists in the improvements which we will now proceed to describe and claim.

Of the accompanying drawings:—Figure 1 represents a plan view of an apparatus embodying our invention, parts of the casing cover being broken away. Fig. 2 represents a section on line 2—2 of Fig. 1.

Fig. 3 represents a section on line 3—3 of Fig. 1. Fig. 4 represents a view similar to a portion of Fig. 3, showing the dog tripped to release the bell hammer. Fig. 5 represents a section on line 5—5 of Fig. 1. Fig. 6 represents a view similar to a portion of Fig. 5, showing the dog in its tripped position. Fig. 7 represents an end elevation of the apparatus, showing a telephone transmitter associated therewith.

The same reference characters indicate the same parts in all the figures.

In the drawings:—12, represents a supporting structure for the parts of our improved apparatus, the same being preferably a casing having a cover 13.

14 represents a primary counter secured to the bottom of the casing. Said counter is of the type shown by the Veeder Patent, 634,073, and comprises a rockshaft 15 adapted to operate a series of numbered disks or counter members, and provided with an oscillatory operating arm or lever member 16, the said rockshaft and arm being normally held yieldingly in predetermined positions and adapted to operate the counter members by a movement from said positions, as fully described in the said Veeder patent.

17 represents a lever fulcrumed at one end of the casing, and having a shorter arm connected by a pin and slot connection 19 with the operating arm 16, and a longer arm projecting from the casing and provided with an enlargement adapted to support a telephone element such as a receiver.

The arm 16 and the lever 17, connected as described, comprise a compound lever through which the act of placing a telephone element upon the enlargement 20 causes the operation of the primary counter as presently described. The longer arm of the lever member 17 projects through an opening in the side of the casing and is normally held yieldingly in a raised position by the operating arm 16, and is adapted to be depressed by the weight of a telephone element deposited on the enlargement 20. The depression of said longer arm moves the operating arm and rockshaft of the primary counter from their normal positions and operates the counting members. When the telephone element is removed, the rockshaft and operating arm of the primary counter

return to their normal position, by the action of a suitable spring as hereinafter described, and the longer arm of the lever 17 is raised, the apparatus being thus set for the next operation.

The primary counter registers all uses of the telephone and is automatically operated by the usual manipulations of the telephone in taking the portable telephone element from and restoring it to its place.

The apparatus of our invention includes a series of alined secondary counters 14^a each of the same type as the primary counter, the operating arm 16^a of each secondary counter being formed to project through a slot in the cover 13, and manually movable independently from its normal position. The secondary counters may be used to manually register calls and uses not chargeable to the subscriber such as "inward calls," "toll calls," and "line busy" uses.

A secondary counter may be provided to normally register "outward calls," if desired. The cover 13 is provided with sight apertures 23, registering with the different counters, 14 and 14^a, and may have inscriptions adjacent to the sight openings such as "Total calls," "Inward calls," "Outward calls," and "Line busy."

The improved apparatus above described is of compact and simple construction, the lever 17 and the telephone element support being formed as one part and constituting the only considerable protuberance from the casing. Said lever is directly connected with the operating arm of the primary counter so that there is no liability of failure to automatically actuate the primary counter in consequence of lost motion in the connections between the telephone element support and the operating arm and rockshaft of the primary counter.

Our invention includes an alarm or audible signal adapted to be operated by the operation of either of the described counters. As here shown, the alarm includes a bell or gong 24 attached to the cover 13, and two spring-projected hammers 25 and 25^a, each adapted to strike the gong, the hammer 25 being projected against the gong by a spring 26, and the hammer 25^a by a spring 26^a. Mechanism is provided for successively retracting and releasing each hammer, the hammer 25 being retracted and released by a movement of the operating arm 16 of the primary counter from its normal position, while the hammer 25^a is retracted and released by a movement of the operating arm 16^a of either secondary counter from its normal position.

27 represents a dog adapted to engage the pivoted arm 28 forming a part of the shank of the hammer 25. One end of said dog is pivoted to one arm of a bell crank lever 29

which is pivoted at 30 to the bottom of the casing. The other arm of the lever 29 contacts with a lever arm 31, Fig. 2, formed on the operating arm 16 of the primary counter, and is held against said arm 31 by a spring 32 attached to the dog 27. The said dog is reciprocated by the lever arm 31 and spring 32, the lever arm moving the dog in the direction indicated by the arrow *x* when the operating arm 16 is moved from its normal position by the lever 17 and causing the dog to retract the hammer 25. The spring 32 moves the dog in the opposite direction when the lever 17 and operating arm 16 are released by the removal of the telephone element. The dog 27 is tripped during its movement by the lever arm 31, by means of a fixed block 34 on the bottom of the casing, and an incline 35 on the dog, said incline moving onto the block so that the dog is raised as indicated by Fig. 4, and releases the hammer which thereupon strikes the gong.

27^a represents a dog adapted to engage the pivoted arm 28^a forming a part of the shank of the hammer 25^a. Said dog is pivoted to a lever 29^a which is pivoted at 30^a to the casing. To the swinging end of the lever 29^a is attached one end of a bar 38, the other end of which is attached to a lever 29^b. Fig. 1, also pivoted to the casing, the bar 38 being supported by said levers which permit the bar to swing edgewise. The bar extends across and is in sliding contact with each of the counter-operating levers 16^a. A spring 39 normally holds the bar 38 against all the operating levers 16^a. A movement of either lever 16^a from the position shown by Fig. 5 to that shown by Fig. 6, displaces the bar 38 laterally from its normal position, and causes said bar to move the dog 27^a in the direction of the arrow *y*, said dog being thus caused to retract the hammer 25^a. This movement of the dog causes its inclined bottom edge to ride on a fixed block 34^a, the dog being thus raised or tripped as shown by Fig. 6, and caused to release the hammer which now strikes the gong. When the displaced operating lever 16^a is released, the spring 39 restores the bar 38, levers 29^a and 29^b, and dog 27^a to the position shown by Fig. 5, the dog again engaging the hammer shank. It will now be seen that the dog 27 is reciprocated when the primary counter 14 is operated, and is caused to successively retract and release the hammer 25, and that the dog 27^a is reciprocated when either of the secondary counters 14^a is operated, and is caused to successively retract and release the hammer 25^a, so that the operation of any counter causes an audible signal. It is obvious that two gongs may be provided if desired.

As hereinbefore described, the rockshaft 15 and the arm or lever member 16 of the

primary counter are yieldingly held in predetermined positions, and the lever member 17 has its longer arm which is provided with the enlargement 20 normally held yieldingly in raised position by the arm 16. And as also explained, the secondary counters 14^a are of the same type as the primary counter. The springs which so yieldingly hold the rockshafts are indicated at 15^a by dotted lines in Fig. 1.

The lever enlargement 20 is preferably formed to extend entirely across the diaphragm-containing end of a telephone receiver 41 deposited thereon, as indicated by Fig. 7, and to exclude dust and insects from the diaphragm when the transmitter rests on said lever enlargement. The counter casing 12 may be supported in any suitable way, with the lever enlargement in position to be depressed by the receiver when the latter is replaced on the usual supporting hook. The lever enlargement therefore constitutes a diaphragm shield or protector when the receiver is not in use.

We claim:—

1. A telephone call register comprising a casing having a sight aperture in its top, a counter mounted in said casing and coinciding with said sight aperture, a compound lever composed of an inner counter-actuating member located within the casing, and an outer lever member fulcrumed to one wall of the casing and jointed at its inner end to the inner member, the said outer member having a longer arm projecting through one side of the casing and adapted to support a telephone element, a bell crank lever mounted on the base of the casing and engaging said

coin-actuating member, and a spring acting on said bell crank lever to hold the longer arm of said outer member in a normally raised position.

2. In a telephone call register, the combination with a series of alined yieldingly supported counter operating arms, of a spring-pressed bar extending across the paths of movement of all of said arms, pivoted levers supporting the ends of said bar, and alarm operating mechanism connected with one of said levers.

3. In a telephone call register, the combination with a series of alined yieldingly supported counter operating arms, of a spring pressed bar extending across the paths of movement of all of said arms, pivoted levers supporting the ends of said bar, and an alarm operating detent pivotally connected at one end to one of said levers.

4. In a telephone call register, the combination with a series of alined yieldingly supported counter operating arms, of a spring pressed bar extending across the paths of movement of all of said arms, pivoted levers supporting the ends of said bar, an alarm operating detent pivotally connected at one end to one of said levers, and means for raising said detent as it is moved by said lever.

In testimony whereof we have affixed our signatures, in presence of two witnesses.

WILLIAM GIBSON BELL.
WILLIAM HERBERT VINTO.

Witnesses:

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