

A. U. GERBER.
TELEPHONE SIGNAL.
APPLICATION FILED FEB. 19, 1912.

1,061,238.

Patented May 6, 1913.
2 SHEETS—SHEET 1.

Fig. 1.

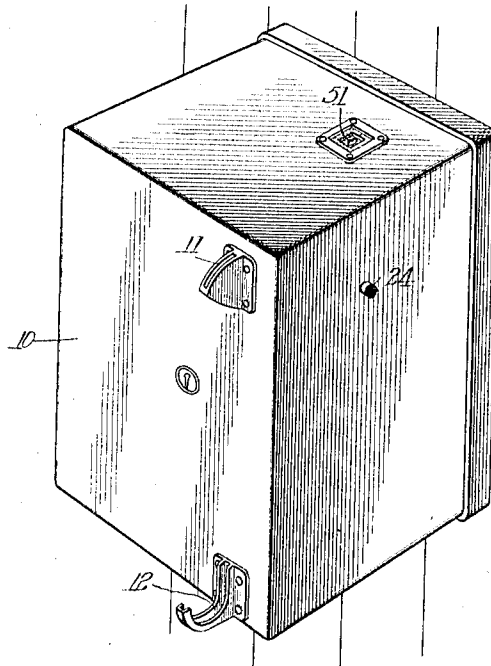
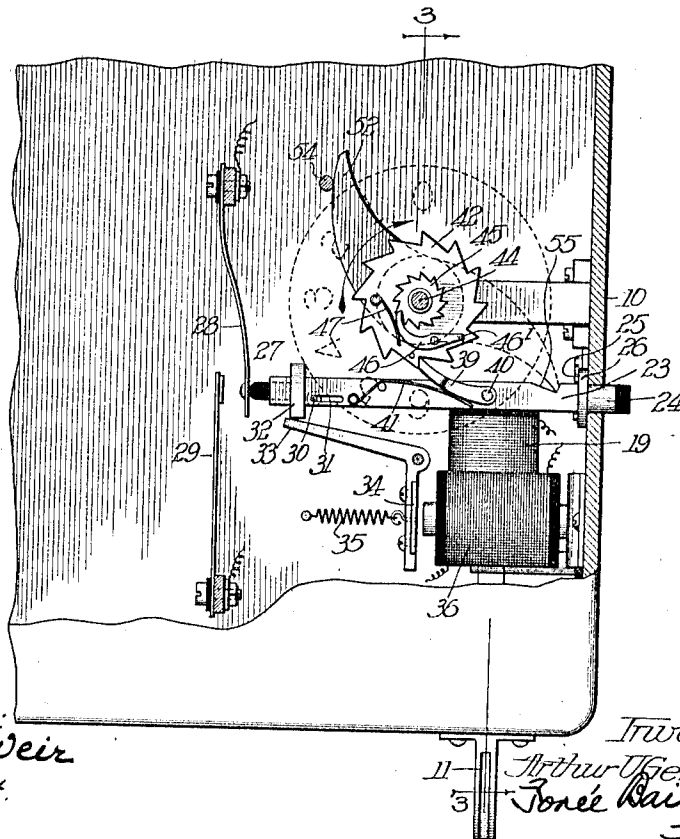


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

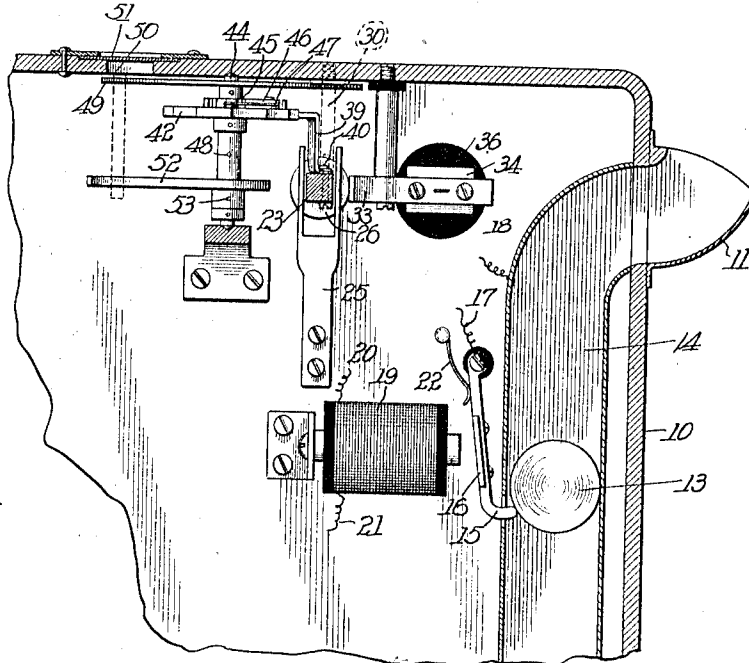


Fig. 5.

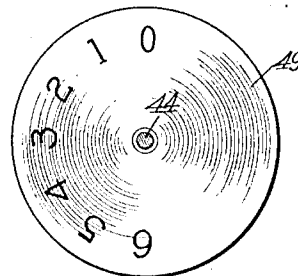


Fig. 4.

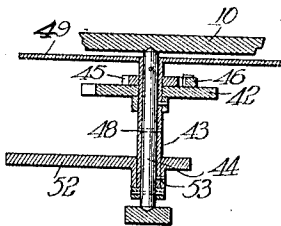
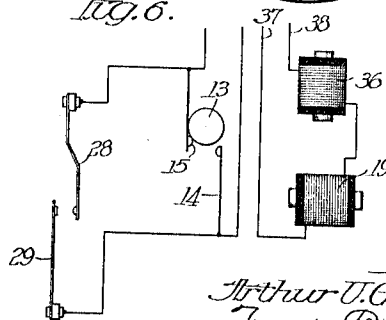


Fig. 6.



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UNITED STATES PATENT OFFICE.

ARTHUR U. GERBER, OF CHICAGO, ILLINOIS.

TELEPHONE-SIGNAL.

1,061,238.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed February 19, 1912. Serial No. 678,607.

To all whom it may concern:

Be it known that I, ARTHUR U. GERBER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Telephone-Signals, of which the following is a specification.

My invention relates to improvements in telephone signals.

One of the objects of my invention is to provide a mechanism to be used in connection with a telephone subscriber's set, in which the signal cannot be initiated until a coin is inserted, whereby a certain and variable number of predetermined emergency calls may be sent to the central station without the necessity of inserting a coin or other token, for each call as usual.

Another object of my invention is to provide means whereby the emergency calls may be registered and which indicates the number of such calls that may have been made.

Still another object of my invention is to provide means for automatically locking the emergency call mechanism after the allowed number of calls have been transmitted.

Other and further objects of my invention will become readily apparent to persons skilled in the art from a consideration of the following description taken in conjunction with the drawings wherein;

Figure 1 is a perspective view of a toll receiving calling box, such as used in subscribers' stations; Fig. 2 is an enlarged plan view of the same with part of the top of the casing removed; Fig. 3 is a vertical section taken on line 3—3 of Fig. 2; Fig. 4 is a section of the rotating registering mechanism; Fig. 5 is the disk of the register; and Fig. 6 is a diagrammatic representation of the circuits of the device.

In all the views the same reference characters indicate similar parts.

10 is the usual (nickel in the slot) or coin-receiving box, used in all subscribers' stations where the insertion of a coin or token is necessary preceding the calling of the central operator.

11 is the slot in which the coin is inserted, and 12 is a rack for catching the coin when it is returned to the calling subscriber.

In Fig. 3 I have shown, in a conventional form, the manner of completing the calling circuit by means of a coin or other token. 13 is the coin, or token, inserted in the chute

14. In its progress through the chute the coin comes in contact with a projecting end or finger 15 of a pivoted armature 16, and closes an electric circuit between the chute proper and the insulated armature 16 and lights a lamp or makes another suitable signal in the central office. As soon as may be or when conversation is completed the central operator closes the circuit through the magnet 19, through connecting wires 20 and 21 thereby attracting the armature 16, and withdrawing point 15 thereof, out of the path of the coin 13 which permits the coin to drop into the receptacle or box 10. A spring 22 returns the armature to its normal position.

In a structure of this character a coin, or other token, is necessary in order to initiate a signal at the central office, to attract the attention of the operator before communication can be had over the telephone wire by the subscriber. It frequently happens, in emergency cases, such as when the services of the police or the fire department are required, that a coin is not to be conveniently had, as in many instances, at night. Therefore it becomes necessary to provide some means by which emergency calls may be sent without necessitating the provision of a coin for this purpose, and my invention relates to mechanism accomplishing this end. My emergency attachment comprises a rod 23 having an end 24, projecting through the walls of the casing 10. The rod 23 is adapted to be reciprocated inwardly by pressure on the button 24 and to be returned by means of the spring 25 which bears upon the limiting washer 26, secured to the rod 23. The inner end of the rod carries an insulated button 27 for moving the contact spring 28 into contact with spring 29. The spring 28 may be made to serve as a means for returning the rod 23 to its outwardly extended position instead of using the spring 25 if desired, or they may both be used. Secured to the upper walls of the casing is a stud 30, which is reduced at its lower end, and projects into a slot 31 of the rod 23 for the purpose of guiding, supporting, and retaining the inner end of the rod in proper position. Secured to the inner end of the rod 23 is a washer 32, so that when the rod 23 is pushed inwardly to connect springs 28 and 29, arm 33, of the armature 34, drops behind the washer 32 and retains the rod in its inward position with

the springs 28 and 29 in contact. A spring 35, of the armature yieldingly holds the arm 33 in said position. An electro-magnet 36, is connected in series with the electro-magnet 19, as shown in Fig. 6 and they are connected to the central office by means of wires 37 and 38. As long as the rod 23 is held in its inward position by means of the arm 33 and contact springs 28 and 29 are thus retained in connection the calling signal in the central office will remain energized. It will be apparent, by reference to Fig. 6, that the contact springs 28 and 29 bridge the contacts 14 and 15 of the slot operable device. When the circuit at the central station is closed over the wires 37 and 38 the magnets 19 and 36 are both energized and when the emergency device has been used, in the manner described, and the springs 28 and 29 remain in contact, the energized magnet 36 attracts its armature 34 and the arm 33 is withdrawn from engagement with the rod 23 and therefore the springs 28 and 25, singly or both acting together return the rod 23 to its normal open circuit position as shown in Fig. 2.

At the time the rod 23 is pushed inwardly to call central by making contact between the springs 28 and 29 I have arranged a mechanism, whereby the number of times that the rod 23 has been reciprocated is visibly indicated on the outside of the box so that each call may thereby be registered at the subscriber's station and the number of calls that have been made are plainly visible upon a disk through an opening in the casing 10. To this end a pawl 39 is pivoted on the rod 23, as at 40, and is yieldingly held, by a spring 41, against the teeth of a ratchet wheel 42, so that by each reciprocation of the rod 23 the ratchet wheel 42 is moved one tooth. The ratchet wheel is loosely supported upon the sleeve 43 that surrounds a shaft 44. This structure is more clearly shown in Fig. 4. To the sleeve 43 is secured a smaller ratchet wheel 45 and a pawl 46 pivoted to the larger ratchet wheel, is yieldingly held against the small ratchet wheel by means of spring 47. Through the instrumentality of the smaller ratchet wheel 45 and pawl 46 the sleeve 43 and the shaft 44 may be driven. The pawl 46 has a tail 46' by means of which the pawl 46 may be moved clear of the teeth of the ratchet wheel 45, so that the ratchet wheel 45 and the shaft 44 and the other portions connected thereto may be rotated independently of the large ratchet wheel 42 for a purpose to be hereinafter described. The sleeve 43 is secured to the shaft 44 by means of the pin 48 so that these parts may be positively rotated together.

A registering disk 49 is provided with numerals around and near its periphery spaced apart in correspondence with the spaces on

the teeth of the ratchet wheel 42, so that the numerals will be successively placed in front of the aperture 50 through the casing 10, and at each reciprocation of the rod 23. Any desired number of numerals, within the capacity of the disk, may be used but, for the purpose of this apparatus, only six are shown and these represent the number of emergency calls that may be allowed to the subscriber within a given time. The disk 49 is shown immediately below a covered aperture 50 in the casing 10, in Fig. 3 and in Fig. 1 the aperture is shown in perspective where it will be observed that the numeral on the disk may be seen through the transparent covering 51 of the aperture 50. A dog 52 is secured to the sleeve 43 by a pin 53. When the naught on the disk 49 is immediately below the aperture 50, of the casing 10, the dog 52 rests against a stop-pin 54 and in this position the indicator shows that not any of the emergency calls have been made. Now when the button 24 has been pushed inwardly until the springs 28 and 29 make contact, and thereby a signal is shown in the central office and indication is thereby made to the operator at that office that the subscriber, at the particular station, desires communication, the arm 30, of the armature 34, will fall under the washer 32 and will retain the parts in this position, at the same time the pawl 39 has operated the ratchet wheel 42 one notch and the figure 1 of the disk 49 is then brought immediately below the under aperture 50 of the casing 10 indicating that one call has been made. When the operator at central station energizes the electromagnet 36, the armature 34 is attracted and the arm 33 is thus withdrawn from the support of the rod 23 and the latter is returned to its normal position, when the pawl 39 falls into the next notch of the ratchet wheel 42 ready to be moved again. A notch 55 is made in the front end of the rod 23 for engagement of the dog 52. After all the allowed calls have been made, or when figure 6 stands immediately below the aperture 50 in the casing 10, the dog 52 is then moved around into the position shown in dotted lines in Fig. 2 and the end of the dog will engage the notch 55 thereby preventing the subscriber from pushing the rod 23 as before described, for the purpose of making an emergency call. By this means emergency calls are registered, and the aggregate number of such calls that have been made, from time to time, are plainly visible, whereby the subscriber is at all times advised of the number of calls that he has made and the number that he has left and the company may preserve the record by consulting the register. To set the device back to zero, the inspector has only to move the tail 46' of the pawl 46, so that it will clear the ratchet wheel 45 and then move

the dog 52 back against the stop pin 54. This operation will return the zero to the position immediately under aperture 50 of the casing 10 and the device is then in a condition to be operated six times more as before.

Of course my device could be used for other purposes than for registering the emergency calls as all the calls could be registered by the operation of the device. In this event a more extensive registering index would be required, but such devices consist simply in the multiplication of the wheel 49 and are well known in the art and will therefore not be described. Should multiple disks be used for registering all of the calls, of course the dog 52 would be dispensed with and such mechanism could be used to register calls continuously just as a gas meter registers continuously the number of cubic feet of gas consumed and after a given number of cubic feet have been so registered the registering apparatus will return to zero.

While I have herein described, to some extent, a specific embodiment of my invention it will be apparent that many changes may be made in the structure without departing from the spirit and the scope of the appended claims.

What I claim is:—

1. A device, for use with the circuit-closing switch of a telephone apparatus, comprising an emergency circuit-closing switch, switch-operating means extending to the exterior of said device for manual operation to close said switch, register means associated with said switch-operating means to produce a visible indication of calls effected by the emergency switch up to a limited number thereof, and means to lock said switch-operating means against movement after said limited number of calls is registered.

2. In a telephone call-signal device, an emergency circuit-closing switch, a switch-operating means extending to the exterior of said device for manual operation to close said switch, a lock adapted and arranged to become effective after a predetermined number of emergency calls, to lock said switch-operating means, and means associated with said switch-operating means to produce a visible indication of previous emergency calls.

3. In a telephone call-signal device, an emergency circuit-closing switch, a push rod for manual operation thereof, a pawl on the rod, a ratchet engaged by the pawl, a smaller ratchet loosely mounted with respect to said pawl-engaged ratchet, a dog on said pawl-engaged ratchet spring-pressed into engagement with said smaller ratchet and an index wheel rotatable with said ratchet, for purposes described.

4. In a telephone call-signal device, an emergency circuit-closing switch, a push rod for manual operation thereof, a pawl on the rod, a ratchet engaged by the pawl, and a dog rotatable with said ratchet to a position in engagement with said rod to prevent further movement thereof.

5. In a telephone call-signal device, an emergency circuit-closing switch, a push rod for manual operation thereof, a pawl on the rod, a ratchet engaged by the pawl, a dog adapted and arranged for rotation from one position to another position into engagement with said rod, an index wheel adapted and arranged for rotation successively to indicate calls made by said emergency switch, and connections between said ratchet, dog, and index wheel for movement thereof step-by-step by operation of said push rod.

6. In a telephone call-signal device, an emergency circuit-closing switch, a push rod for manual operation thereof, a pawl on the rod, a ratchet engaged by the pawl, a dog adapted and arranged for rotation from one position to another position into engagement with said rod, an index wheel adapted and arranged for rotation successively to indicate calls made by said emergency switch, a second ratchet rotatable with said dog, and a pawl upon said first mentioned ratchet engaging the second ratchet.

7. In a telephone call-signal device, the combination of two normally open switches arranged in parallel for connection in the same circuit whereby either may close said circuit, one of said switches being arranged for repeated operation, an infinite number of times, manually operable means for closing the other switch, and means automatically to lock the last said switch against such manual operation after a predetermined number of operations.

8. In a telephone call-signal device, the combination with a signal circuit of a normal call switch operable repeatedly an infinite number of times to affect said circuit, a separate emergency switch for affecting said circuit, and a register responsive to operations of said emergency switch and non-responsive to operations of the normal call switch.

9. In a telephone call-signal device, the combination of a normal and an emergency switch both normally open and arranged in parallel to complete a circuit by closure of either thereof, means to close the normal switch an unlimited number of times, means to close the emergency switch a predetermined number of times, means to lock said last switch in open position after said predetermined number of closures thereof, and means associated with said emergency switch to register successive closures thereof within said number of operations determined by the locking means.

10. In a telephone call-signal device, the combination of two switches arranged in parallel, means associated with one of said switches for closure thereof an unlimited
5 number of times by deposit of a coin for each closure, and means for closing the other switch without a coin a predetermined number of times, comprising a manually-movable switch-closing member and a lock oper-

able upon closure of said switch said pre- 10
determined number of times.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

ARTHUR U. GERBER.

In the presence of—

MARY F. ALLEN,
W. LINN ALLEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."