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REGISTER AND ALARM MECHANISM FOR TELEPHONE TOLL APPARATUS.

APPLICATION FILED NOV. 8, 1902.

NO MODEL.

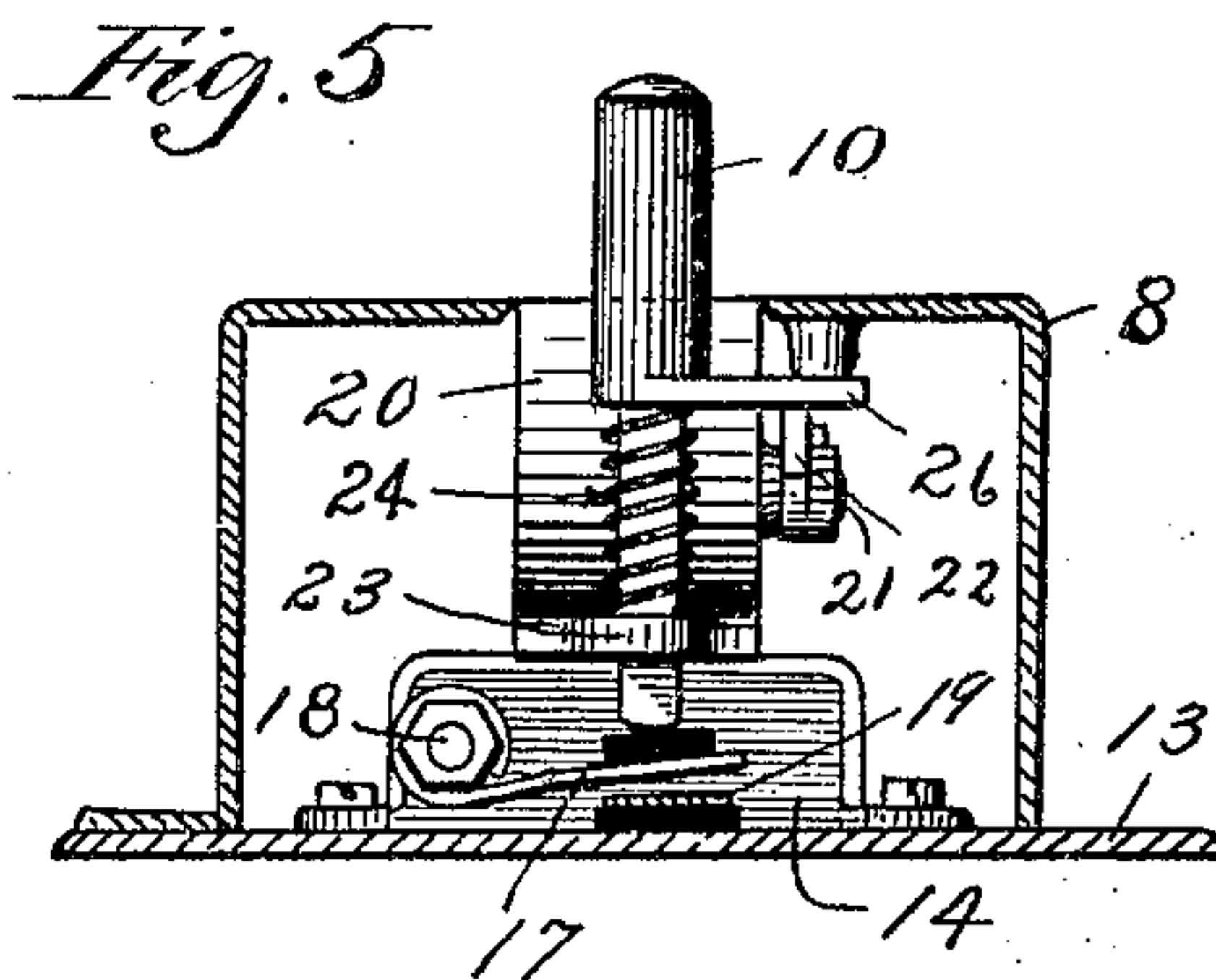
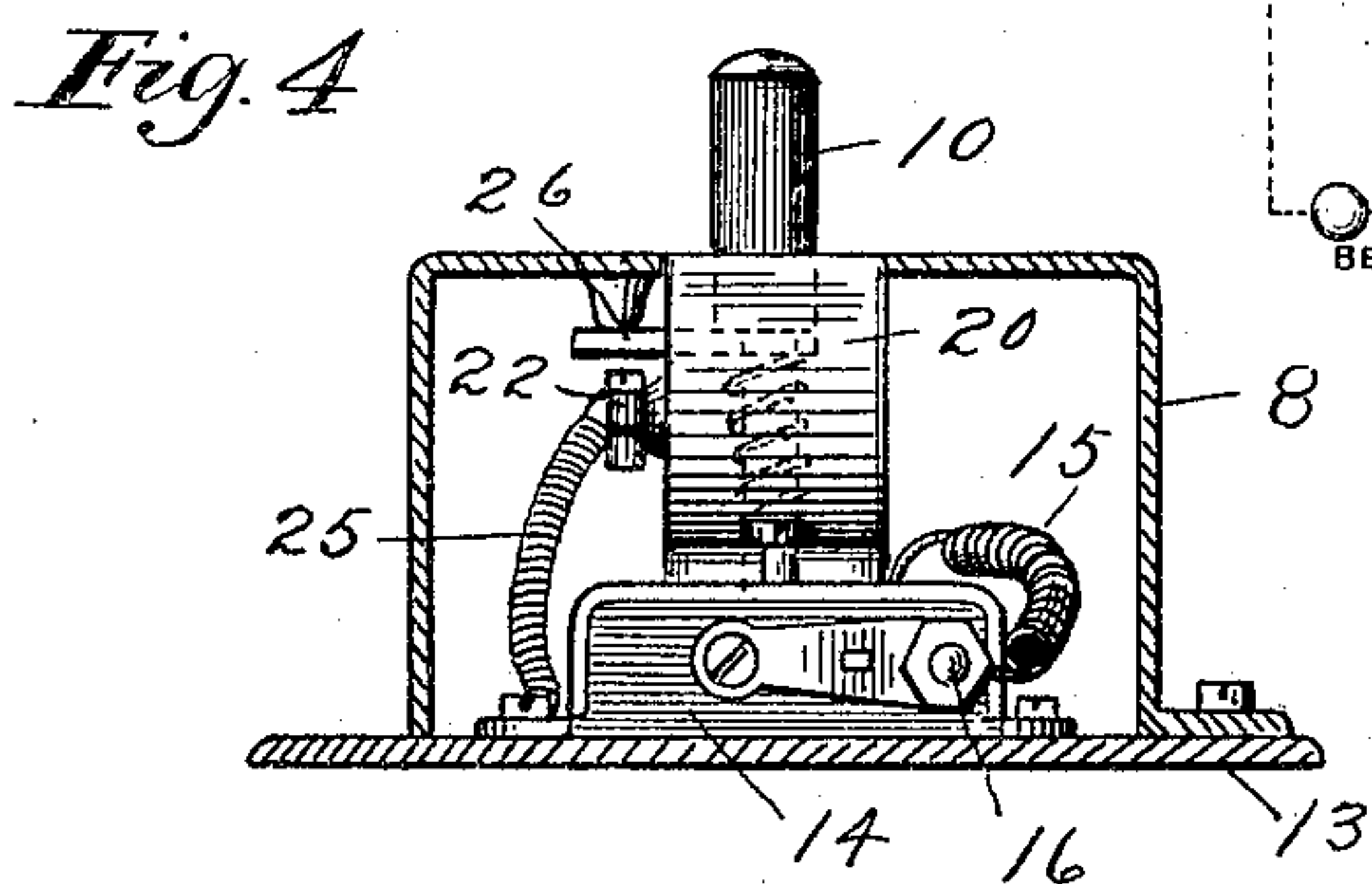
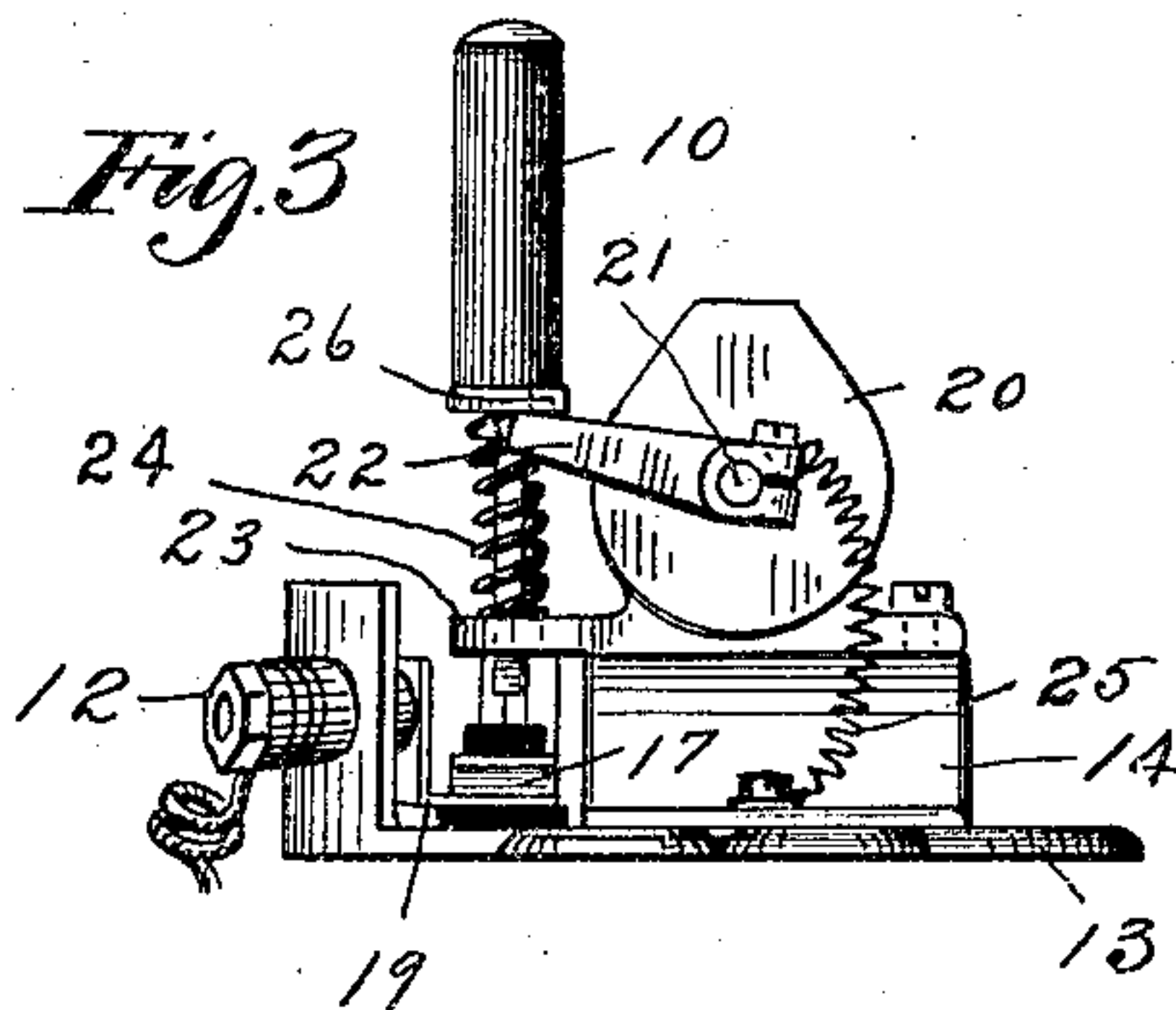
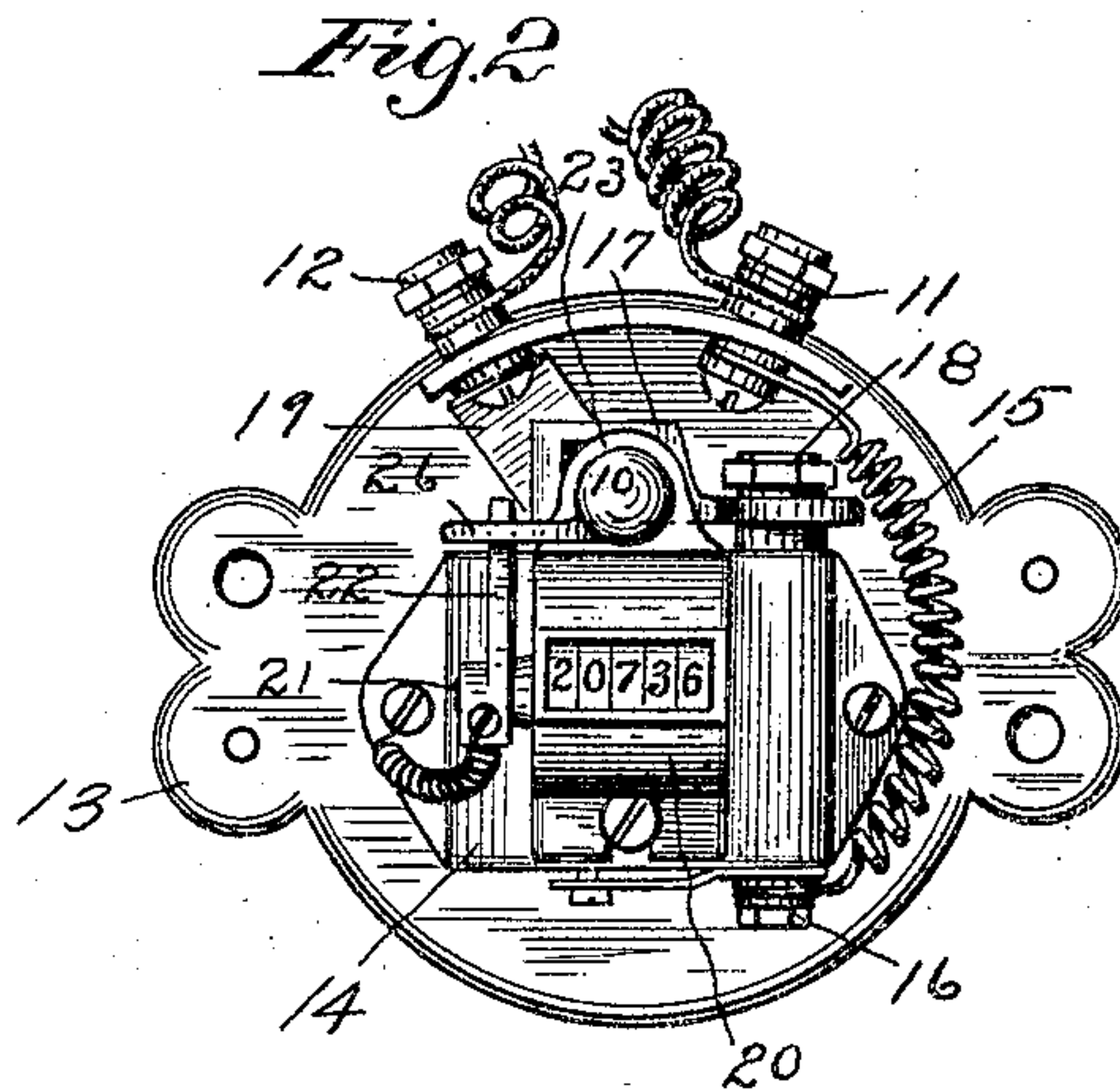
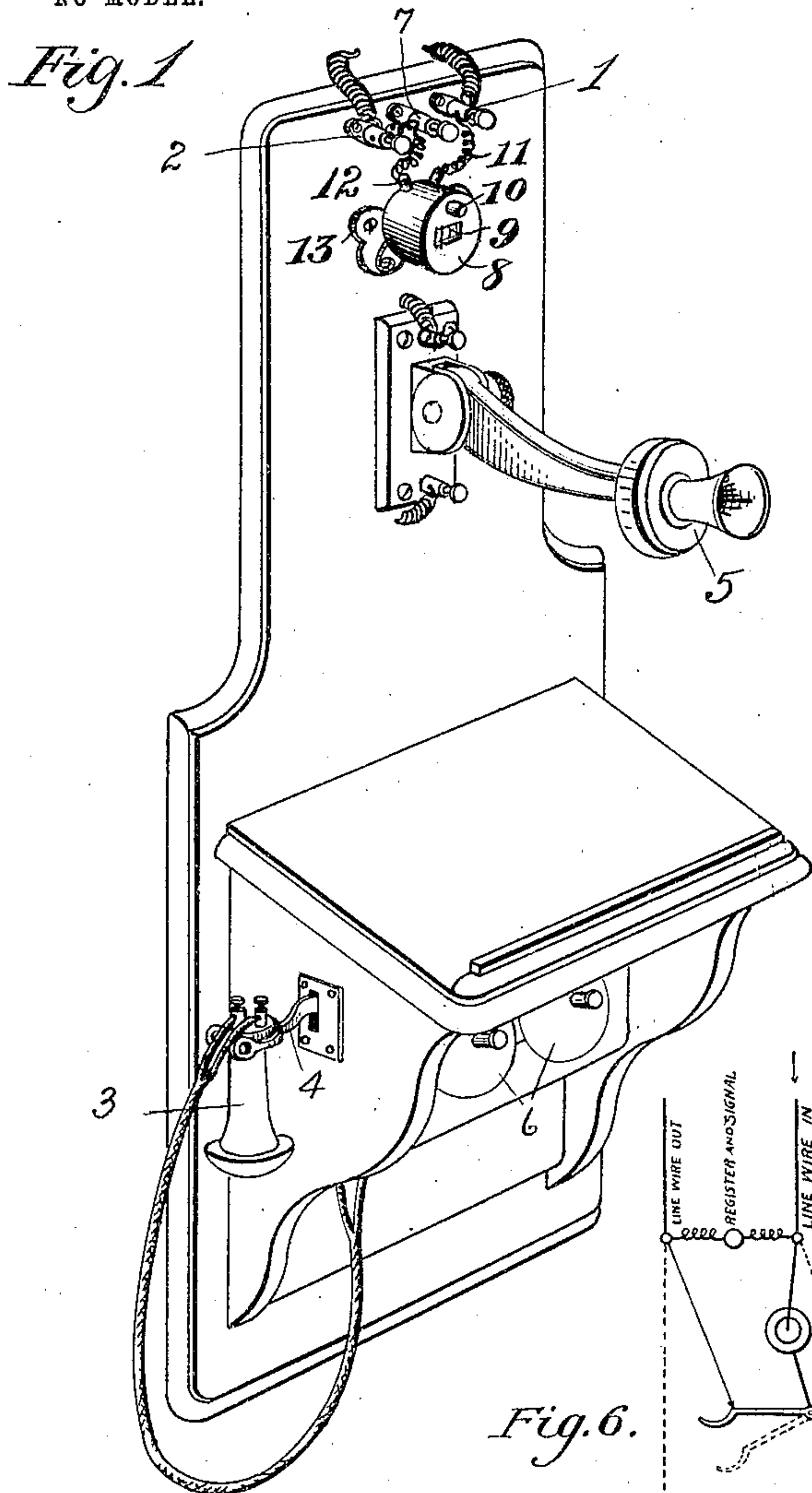
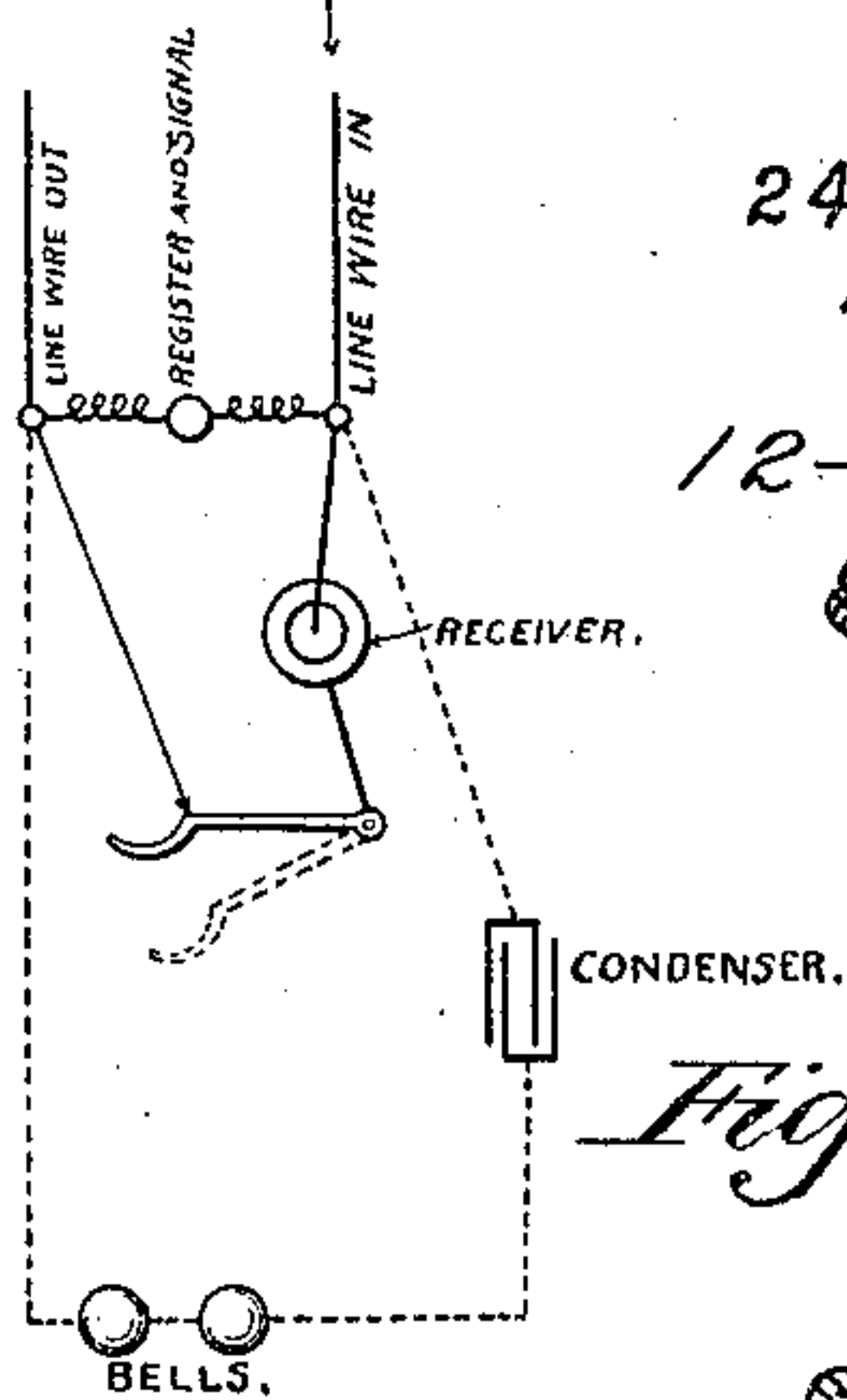


Fig. 6.



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UNITED STATES PATENT OFFICE.

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REGISTER AND ALARM MECHANISM FOR TELEPHONE TOLL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 770,377, dated September 20, 1904.

Application filed November 8, 1902. Serial No. 130,545. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. LONG, 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 Register and Alarm Mechanism for Telephone Toll Apparatus, of which the following is a specification.

My invention relates to that class of telephones in which the user indicates to the central office that some imposed requirement for the use of the telephone has been performed by him; and the object of my invention is to provide an extremely simple and compact device for securing this end and also one that will prohibit the fraudulent use of the instrument or one in which only the means for indicating to the central office that the prescribed requirements have been complied with can be employed. A form of device in the use of which these objects may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a set of telephone instruments to which my improved device is attached with the casing of the indicator broken away to show construction. Fig. 2 is a plan view of the indicator with the casing removed. Fig. 3 is an edge view of the same. Fig. 4 is an edge view in a plane at right angles to the plane of view of Fig. 3. Fig. 5 is a view in section through the device. Fig. 6 is a diagram view showing the relative arrangement of parts and circuits.

My improved toll-signal as illustrated and described herein is particularly adapted for use in connection with the "central-energy" system of telephones now in common use. The toll-signal employs in its operation the current of electricity used in the operation of the talking-circuit of the telephone; but the device is so constructed and arranged as not to change in any respect the parts of the telephone, but is merely an addition thereto and effects only for the instant it is being used the operation of the parts common to the regular telephone set. The central-energy system is so well known in the art as to need no minute description or illustration as to the manner in

which the several parts and circuits are wired. It is sufficient for the purposes herein to state that there are really two circuits of different character embodied in the instrument, one a call-circuit and another a talking-circuit. The toll-signal device is connected up to operate in conjunction with the talking-circuit. The source of electricity for both of these circuits is arranged at the central station and of course more or less remote from the individual subscriber's instrument. It will thus be seen that there is no opportunity of failure to record the use of the instrument, for unless the individual instruments are in operative condition it will be impossible to call the central office, and of course it is not necessary for the subscriber to register the use of the instrument until called upon to do so by the central operator. In other words, whenever the telephone is in operative condition the signal and registering apparatus must come into play if the instrument be used.

It is to be noted that the signal device and registering mechanism are self-contained and so arranged that the whole structure may be readily applied to or removed from any instrument without in any way interfering with the wiring of the instrument or the normal arrangement and operation of its parts. In fact, it is simply applied to the ordinary telephone instrument and its signaling-wires connected to the incoming wires of the instrument at the regular binding-post.

In the diagram view shown in Fig. 6 there is illustrated the general circuits of the instrument and the position of the register and alarm mechanism, and it will be seen from this diagram that although an attempt be made to use the register when the receiver-hook is down no sound will be transmitted through the instrument until the receiver is removed from the hook and the energizing-circuit for the transmitter and receiver is passing through said parts.

In the accompanying drawings a portion of a set of telephone instruments common to the central-energy system has been shown.

In said drawings, the numeral 1 indicates a binding-post connected with the wire for conducting the current inward, and 2 a binding-

post connected with the wire for conducting the current outward from the telephone set.

The numeral 3 indicates the receiver adapted to be hung on the switch-hook 4 in the usual manner, and the numeral 5 indicates the transmitter, and the numeral 6 the signal-bells used for calling, which for convenience may be called the "subscriber's signal."

The numeral 7 indicates a binding-post located between the binding-posts that conduct the current inward and outward. All of the parts are connected up and wired in a well-known manner, and for this reason the wiring and operation of the several parts, except as needed to illustrate my invention, will be omitted, as it will be readily understood by any one skilled in the art. The binding-post 7 is connected with the binding-post 2, as shown, and the current for operating the signal passes in at the binding-post 1 and after passing through the instrument and the signal passes out through the binding-posts 7 and 2.

The numeral 8 indicates the casing of my improved signal box and register, within which the operating mechanism is located. An opening 9 is formed in the front wall of the box through which the number on the register may be observed, and a plunger 10, also projecting through the wall of the casing, is employed for a purpose to be hereinafter described. Signal binding-posts 11 and 12 are mounted on the casing and are connected by wires with the binding-posts 1 and 7, respectively, as shown. The casing is attached by its base 13 to the back board of the telephone instrument in any convenient manner, preferably directly above the transmitter-base.

A signal device 14 is mounted on the base, and this signal may consist of any well-known form of device employed for the purpose of emitting audible signals. In the form chosen for illustrating my invention I have selected the well-known "buzzer." In adopting this device for the purpose in hand a connection 15 extends from the binding-post 11 to the binding-post 16 of the buzzer, and a buzzer-contact 17 is mounted on the binding-post 18. This buzzer-contact is provided with an insulating material on its upper face, and it is resiliently held out of engagement with the base-contact 19. This base-contact is insulated from the base, and each of the binding-posts 11 and 12 are also insulated from the base, so that a current of electricity passing in through the binding-post 11 through the buzzer and through the two contacts 17 and 19 and out at the binding-post 12 will be free from any obstruction by contact with the base, but will freely travel through the course designed for it.

A register 20 is mounted on the base, preferably located on the buzzer. This register may be of any well-known form, preferably that in which there are a number of disks arranged side by side and bearing a series of

numbers and which disks have a step-by-step movement to bring successive numerals into view and are so connected as to register and denote the series of tens, hundreds, &c., of numbers on the disks. A shaft 21 is employed for operating the disks, and an arm 22 is connected to this shaft as a means of oscillating it.

The plunger 10 extends through a bearing 23, and its inner end is adapted to engage with the insulated surface of the buzzer-contact 17, the plunger being held normally at the outer limit of its play by a plunger-spring 24. A register-spring 25 holds the register-arm in a normal position of rest. The plunger has an arm 26 overlying and adapted to engage the register-arm 22 when the plunger is pushed inward, the latter moving to an extent sufficient to cause the succeeding numbers on the dials of the register to be brought into view.

The operation of the device is as follows: The central office is called in the usual manner by removing the receiver 3 from the hook 4. The lifting of the outer end of the hook breaks the signaling-circuit which passes in at the post 1 and out through the posts 7 and 2. When it is ascertained that the desired connection can be obtained, the central office instructs the operator to make the required signal. This is done by pushing in on the plunger 10 and throwing the buzzer-contact and base-contacts 17 and 19 into engagement. This establishes a connection between the binding-posts 1 and 7, through which passes the direct current of the talking-circuit, and this operates the buzzer, which is distinctly heard by the operator at the central office. It is of course apparent that the buzzer is in shunt connection with the talking-circuit and will only be operative when said circuit is ready for use. This inward movement of the plunger has also moved the register, which indicates the use of the instrument.

I have illustrated in the specification one embodiment of my invention; but I do not wish it to be understood that the scope of the invention is limited to the application or mode of operation shown and described more than is necessary in view of the prior art.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with a set of telephone instruments including a call-circuit and a talking-circuit, both actuated by a source of power at a central station remote from the instrument and including a switch-hook for controlling the passage of energy through the call-circuit and talking-circuit, a self-contained and bodily-removable signaling and registering device, binding-posts upon the telephone instrument to receive the incoming line-wires, said bodily-removable signaling and registering device secured to the instrument adjacent to the binding-posts and having electrical con-

nections with said binding-posts whereby the signal device is actuated by the energy of the talking-circuit when said circuit is made operative by the release of the switch-hook, a
5 plunger connected with the registering device and adapted upon predetermined depression to close a circuit for the signal device, and normally open contacts for closing an electrical circuit through the signal device.
10 2. In combination with a set of telephone instruments, a self-contained and bodily-removable signaling and registering device including a base adapted to be secured to the front board of the telephone instrument adjacent
15 cent to the incoming line-wires, a buzzer mounted in a metallic case upon the base, a register secured to the base and having a pro-

jecting part of its casing forming a guide for a plunger, a spring-retained plunger arranged to slide in said support and having a projecting arm, an arm for the register underlying the projecting arm of the plunger, a pair of contacts, one mounted upon the casing of the buzzer, the other mounted upon and insulated from the supporting-base and underlying the
25 end of the plunger, and connections intermediate said contacts and the incoming line-wires adapted to pass a current of electricity through the buzzer upon a depression of the plunger.

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