No. 631,023. Patented Aug. 15, 1899.

M. C. MENGIS.

TELEPHONE TOLL APPARATUS.

(Application filed Sept. 13, 1899.)

(No Model.) 2 Sheets—Sheet 1.

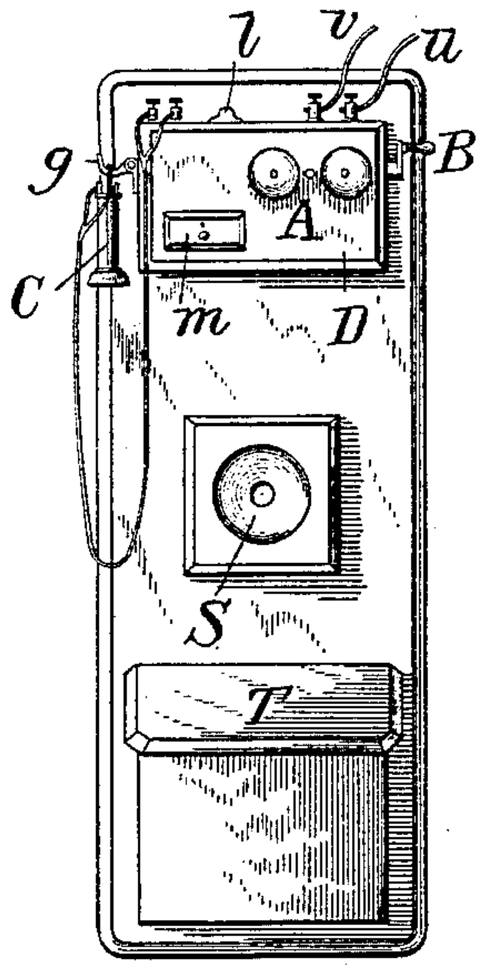

Fig. 1.

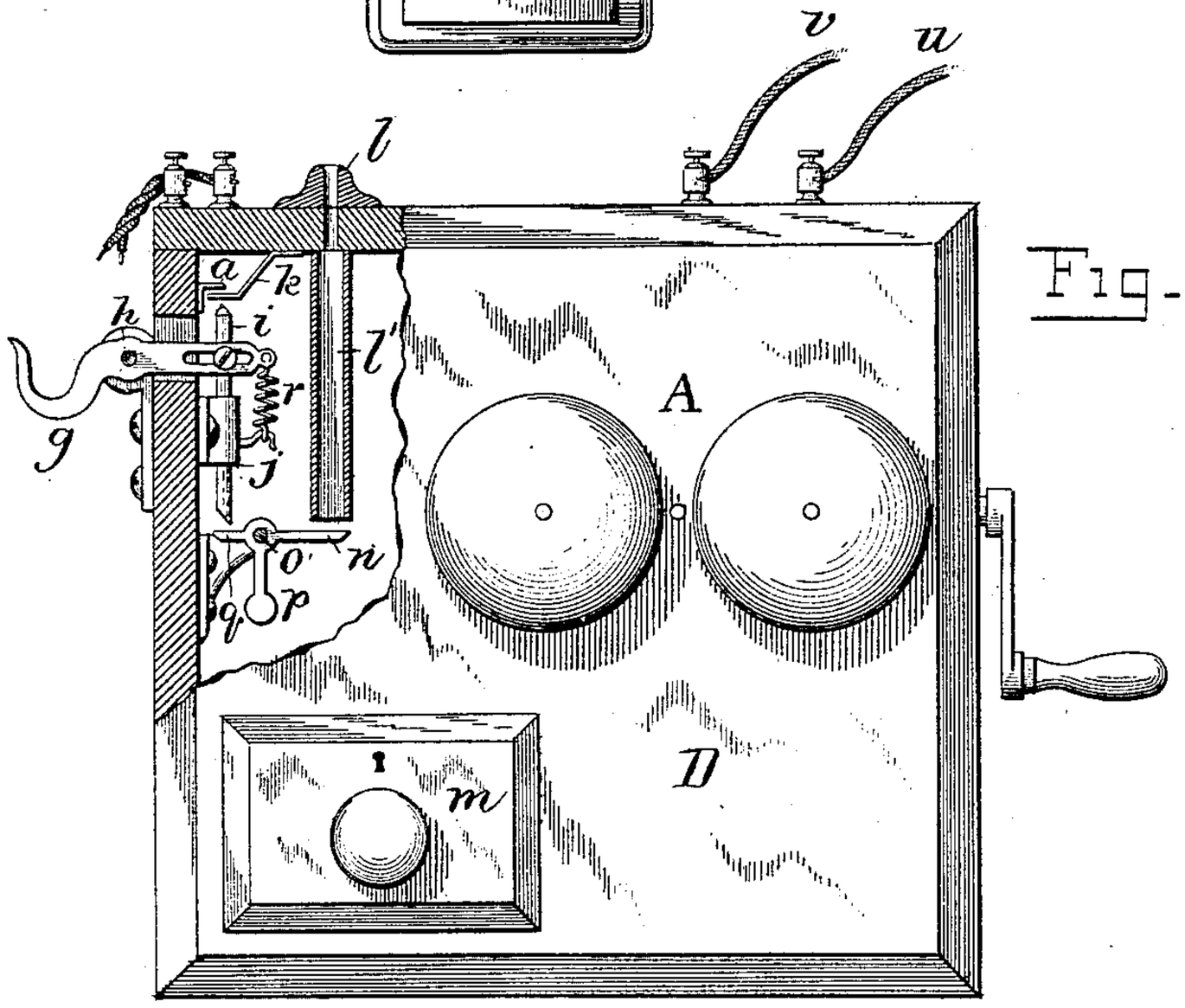

Fig. 2.

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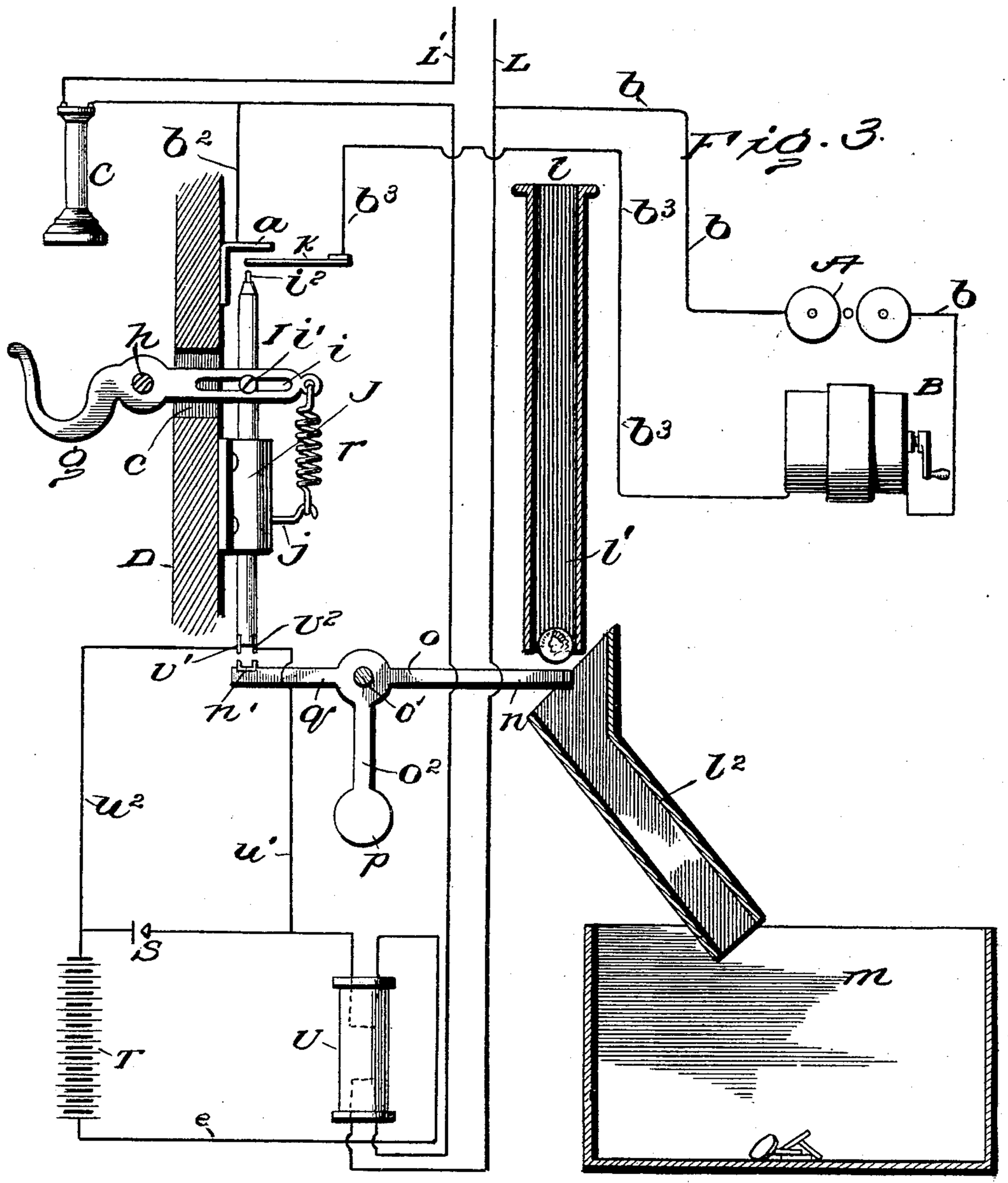

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UNITED STATES PATENT OFFICE.

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TELEPHONE TOLL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 631,023, dated August 15, 1899.

Application filed September 13, 1889. Serial No. 323,851. (No model.)

To all whom it may concern:

Be it known that I, MORRIS C. MENGIS, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Telephone Toll Apparatus, of which the following is a specification.

My invention relates to telephone toll apparatus, or, in other words, to that class of telephonic devices in which the deposit of a small sum of money is made a precedent condition to communication or conversation with another person at a distant station.

One purpose of my invention is to provide an apparatus of this type in which the deposit of a coin shall close the circuit between the station where such deposit is made and the telephone-exchange station, a suitable signal being made at the latter point to attract the attention of an operator and to indicate or identify the particular substation from which the call is made, whereby an attendant at the central-station switchboard can ascertain what station must be called up and plugged in in order to complete a talking-circuit.

My invention also comprises other novel features, all of which will be fully disclosed and explained in the following description and then particularly pointed out and defined in the claims which conclude this specification.

For the purposes of said description reference will be had to the accompanying drawings, in which—

Figure 1 is a front elevation of the complete telephone apparatus at a substation or "pay-station." Fig. 2 is a front elevation, partly in section, upon a larger scale, showing the toll apparatus, together with those parts of the telephone immediately adjacent thereto. Fig. 3 is a diagram of the circuits, the essential parts of the toll apparatus being shown in vertical section.

The reference-letter A in said drawings indicates the magneto call-bell, the magneto B being arranged in the telephone-box D in the ordinary and well-known manner. The telephone-receiver C hangs when not in use upon a supporting-hook *g*, which projects from the box upon which it is pivoted at *h*, its other end extending through a slot *c* in the wall of the box, into the interior of the latter, in its general construction and arrangement resembling the gravity-switch of the Bell telephone. The transmitter S, battery T, and induction-coil U require no special description, as they are of the ordinary type.

The hook *g* upon which the receiver normally hangs is provided with a slot *i*, formed longitudinally in the end which lies inside the box D. A spring *r*, connected to the extremity of the slotted part of the hook and to a rigid finger *j* below, normally draws the slotted end of the hook downward, as seen in Figs. 2 and 3. A vertical bar I, arranged to move in a guide-bracket J, mounted on the inner face of the box D, is connected to the slotted part of the hook by a pin or screw *i'*, tapped into or otherwise secured to the bar I and lying in the slot *i*. The bar therefore will move vertically whenever the hook *g* is vibrated upon its pivot *h*. The equilibrium of the hook and the power of the spring *r* are so adjusted that when the receiver C is hung upon said hook its weight will suffice to overcome the spring and draw the slotted part of the hook *g* upward, thereby raising the bar I and holding it in its elevated position until the receiver is removed from the hook *g*, when the weight of the bar and the tension of the spring combined will draw the slotted end of the hook *g* downward and retain it and the bar I at the lowest point to which they are capable of moving.

The bar I may be formed of any suitable non-conducting material or it may be of conducting metal. In the latter case it would be provided at its upper end with a non-conducting point i^2, which bears against a spring-contact *k* when the bar I is raised and presses it against a rigid contact *a*. These contacts lie in and form part of the circuit which includes the magneto B, call-bell A, and the main line L L', as more particularly described hereinafter.

At its lower end the bar I is provided with two separate electrically-isolated contact-blocks v' v^2, which lie in and are used to make and break a circuit, which will be fully explained at the proper point hereinafter.

The telephone-box D is provided with a suitable coin-opening *l* and a coin-chute *l'*, which I have shown arranged vertically, though this is not a necessary feature of my invention. Below the lower end of the chute is placed a

suitable receptacle for the coin, such as a drawer *m*. In Fig. 2 of the drawings the drawer or other receptacle is directly beneath the lower end of the chute, whereas in Fig. 3 the drawer is removed somewhat to one side, and between it and the lower end of the chute *l'* an inclined guide l^2 is interposed. The purpose of this modified form will be explained in its order.

Below the lower end of the bar I and of the coin-chute *l'* lies a coin-operated lever *o*, having a fulcrum *o'*. This point of support is removed somewhat from the center of the lever or from the point where perfect equilibrium would be obtained, so that the part of the lever between the fulcrum *o'* and the chute *l'* will be somewhat longer than the part on the other side of the fulcrum. A substantially horizontal position is maintained, however, by a weight *p*, which is connected to the lever by a rigid arm o^2 just beneath the fulcrum *o'*. Upon the short arm *q* of the lever, near its end, is mounted a single contact-piece *n'*. Being a bridging-contact, this engagement completes the circuit in which the contacts *v'* and v^2 are included. So, also, when the receiver is upon the hook *g* the bar I is raised by its weight to such a point that when a coin is dropped in the chute *l'* and falls upon the end of the long arm *n* of the lever the latter is able to turn far enough to drop the coin into the drawer *m* and at the same time establish for a moment the circuits completed by means of the contacts carried by the short arm of said lever. On the other hand, when the receiver is off the hook *g* the bar I is dropped so far as to limit the movement of the lever upon its pivot *o* when the coin descends upon it. This limited movement brings the contacts carried by the short arm *q* of the lever against the contacts *v' v²*. These contacts arrest the lever before it moves far enough to permit the coin to drop off the end of the arm *n*, upon which said coin remains as long as the receiver C is not on the hook. When the receiver is placed upon its hook *g*, its weight causes the bar I to rise until it is stopped by its point i^2 coming against the spring-contact *k*. By this movement its lower end is raised to such a point that the lever-arm *q* can rise still further under the weight of the coin resting on its other arm *n*. The latter being correspondingly depressed, sufficient space is given between its end and the lower end of the chute *l'* to allow the coin to pass into the guide-chute l^2 and thence into the coin-drawer. Until this movement of the lever takes place the coin must remain resting thereon, since in the normal position of the lever there is not sufficient room for the coin to pass over the end of the lever and drop out of the chute. As the lever tips, however, space is given just wide enough for the passage of the coin, which rolls off the lever and drops into the drawer *m*. The lever is immediately returned to its normal position by the weight *p*.

The call-circuit by which the central station is signaled is from one pole of the battery T over wire *e*, through the primary winding of the induction-coil U, thence by a branch wire *u'* to the contact v^2, through the bridge-contact *n'*, contact *v'*, and wire u^2 to the other pole of the battery. The current induced in the secondary winding goes to the line, this part of the circuit being too plain to need description.

The circuit of the magneto B is by a wire *b* to the line-wire L with a return by line-wire L', through the receiver C by wire b^2 to the contact *a*, and from the contact *k* by a wire b^3 back to the magneto.

The telephone-circuit, so far as the induction-coil, battery, transmitter, and receiver are concerned, does not differ from that ordinarily employed, the transmitter and battery being in the primary and the receiver and line-wire in the secondary. It should be understood that this call-circuit is closed by dropping a small coin of a given value—as, for example, a nickel—into the coin-chute *l'*, the receiver C being allowed to remain upon the hook *g*.

In order that the person calling may be put in communication with another substation, the attendant at the central-station switchboard after learning the number or call of the station with which conversation is desired directs the person who has called for that station to replace his receiver upon its hook and then to drop a specified sum in the coin-chute in addition to the single coin which was used to call up the central station.

What I claim is—

1. In a telephone toll apparatus, the combination with a coin-chute, of a coin-operated lever having one end arranged beneath the exit end of said chute, a contact normally limiting the movement of the lever and preventing the escape of the coin from the chute, and means operated by the hook supporting the receiver to raise said contact and permit a further movement of the lever whereby the coin can pass out of the chute, substantially as described.

2. In a telephone toll apparatus, the combination with a coin-chute, of a pivoted coin-lever having one end under the exit end of the chute, and a bridging-contact on the other end, contact-blocks over said bridging-contact to limit the movement of the lever and prevent the coin resting on its other end from passing off and out of the chute, a call-circuit including said contacts, and a support for the contact-blocks raised by the receiver-hook, when the receiver is placed on the latter, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

MORRIS C. MENGIS.

Witnesses:
JOHN E. MORRIS,
JNO. T. MADDOX.