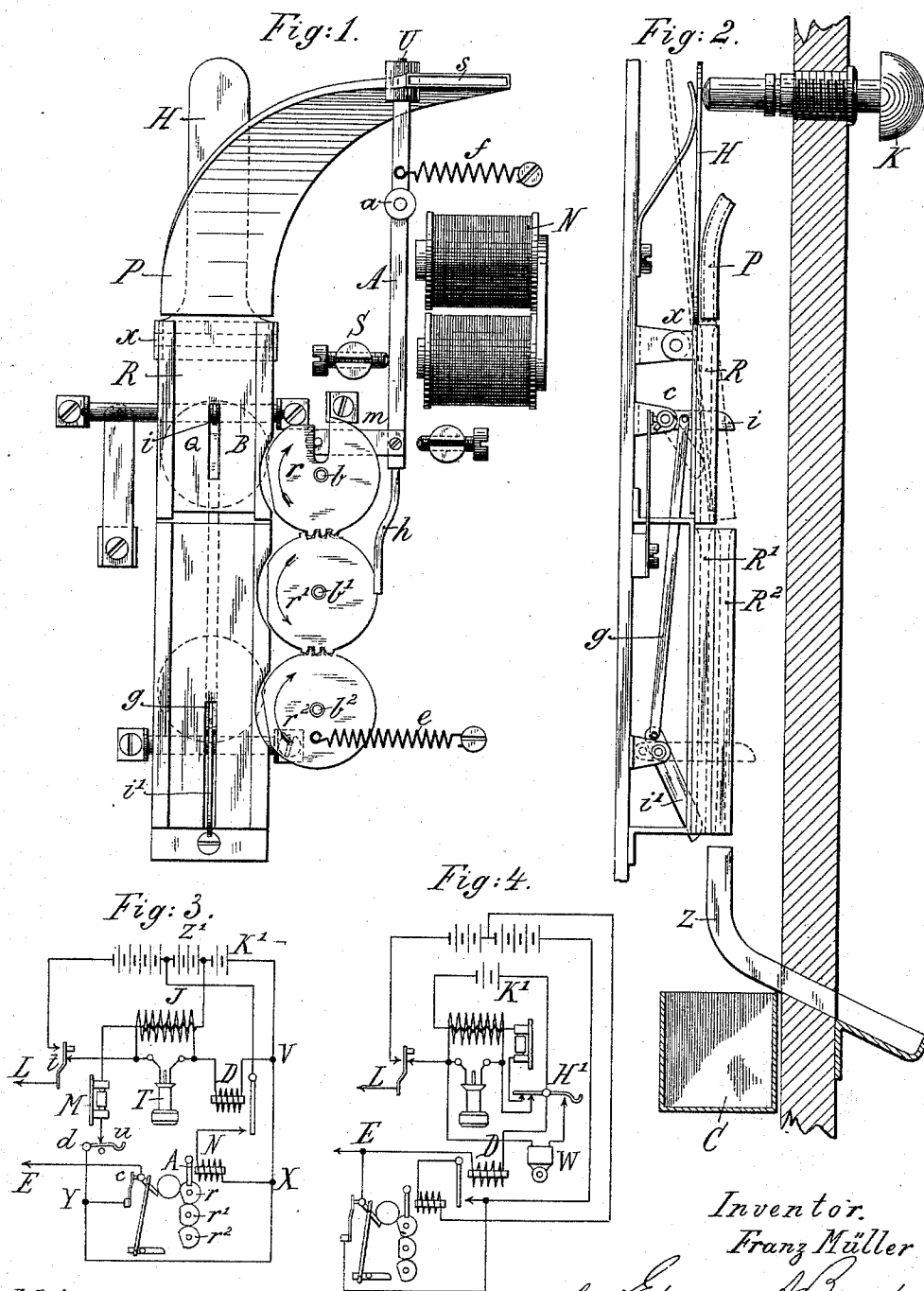


(No Model.)

F. MÜLLER.
AUTOMATIC COIN ACTUATED TELEPHONE.

No. 483,162.

Patented Sept. 27, 1892.



Witnesses
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FRANZ MÜLLER, OF BERLIN, GERMANY.

AUTOMATIC COIN-ACTUATED TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 483,162, dated September 27, 1892.

Application filed August 25, 1891. Serial No. 403,725. (No model.) Patented in Germany March 30, 1891, No. 59,276; in Switzerland May 4, 1891, No. 3,564, and in Italy June 30, 1891, XXV, No. 29,746, LIX, 8.

To all whom it may concern:

Be it known that I, FRANZ MÜLLER, foreman, a subject of the Emperor of Germany, residing at Berlin, in the German Empire, have
5 invented certain new and useful Improvements in Apparatus for Automatically Actuating Telephones on Insertion of Coins in Payment for the Use of Same, of which the following is a full and clear specification.

10 Letters Patent have been granted for the said invention in the German Empire, dated March 30, 1891, under No. 59,276; in Switzerland, dated May 4, 1891, No. 3,564, and in Italy, Vol. 25, No. 29,746, Vol. 59, No. 8, and
15 dated June 30, 1891.

The object of this invention is to provide telephone-stations with apparatus for receipt of the payment to be charged for the use of the telephone.

20 This apparatus is to fulfill the following conditions: First, connection is made automatically upon a particular coin being placed in the slot, and until this is done the exchange cannot be rung up; second, if the line required is already engaged or for any other
25 reason the desired communication cannot be obtained the money is refunded; third, the money cannot be regained once the desired connection has been made at the central exchange; fourth, at the close of conversation the line is automatically interrupted.

The method of working is somewhat as follows: When the coin is inserted into the slot, it is first subjected to the usual tests for size, (diameter and thickness,) and finally weight.
35 Failing to pass these tests, it is rejected; but should it prove satisfactory it passes downward into a chute until its progress is arrested by the upper of three wheel-segments, which, protruding through slots in the side of one of the chutes and actuated by a lever connected with the armature of an electro-magnet, form a check arrangement. The armature is kept away from the magnet by means of a spring; but when the current
45 passes round the bobbin (upon establishment of communication at exchange) it is attracted with a force greater than that exerted by the spring, and consequently the lever is moved, turning the segments and allowing the coin

to drop to the second rest. The first or upper segment projects into a portion of the chute which is movable, and it is from here that the coin is returned if communication is not to be obtained, and also here contact, allowing the bell to be rung, is made by the coin pressing in its course a small lever. Should the refunding of the money be required, the button at front of instrument is to be pressed. This brings the movable portion of the chute over the slot leading to the refunding-box, the coin being at the sametime released from the checking arrangement. If the conversation takes place, or even if the connection for that purpose is made, the money cannot be reobtained, as directly the current from the central office passes through the instrument the coin falls to the third segment, where it remains until the closing signal is given, when it passes to the cash-box, pressing
55 en route a second lever similar and connected diagonally to the upper lever. This replaces the latter and at the same time breaks communication with exchange. Should the closing signal be omitted, or from any other cause the coin is not passed into the cash-box, but remains in the chute, a roller has been provided at the side of the slot into which the money is placed. This roller is connected to the armature in such a manner that when-
60 ever a coin is introduced the armature is moved, as if electrically, turning the segments, and thus allowing the coin remaining to fall into the cash-box before that newly introduced has had time to pass through the testing apparatus.

In order to make my invention more clear, I refer to the accompanying drawings, similar letters representing similar parts.

Figure 1 is a front elevation of my device. 90 Fig. 2 is a side elevation of the same. Fig. 3 is a diagrammatic view showing the arrangement of the batteries and contacts. Fig. 4 is a diagrammatic view showing a modified arrangement.

The coin is, as usual with automatic selling apparatus, inserted through a slit *s* into a conduit *P*, and passes the usual test portion for automatically testing it as to diameter, thickness, and, if desired, also weight, and 100

thus to be either ejected again or led to the cash-box. Between the test portion P of the conduit and the cash-receptacle C my apparatus is inserted. It consists of a chute R R', into the side of which three wheel-segments r r' r^2 reach. These are connected by tooth-wheels and are moved by the armature A of an electro-magnet N and a carrier m , connected thereto. The armature A turns on a fulcrum a and is by a spring f held in its position of rest against a set-screw S. In this position the uppermost segment-wheel r reaches farthest into the side of the chute and can detain the coin Q B during its fall. If the armature A is attracted by the electro-magnet N, the coin is free to drop to the next segment-wheel r' . The first segment-wheel r is for completing the call-circuit and, if the connection cannot be made, for returning the coin. The latter in its chute R falls upon a contact-lever i , which passes through a slot in the chute from behind and is moved down by the weight of the coin until it passes out of the chute and allows the coin to pass to the first segment-wheel r . In that lowered position the contact-lever makes contact at c and closes the circuit. The call can now be made by depressing a Morse key at A. If now the message "Line engaged" comes from the central station, the coin can be obtained back by pressing on a knob K, whereby the upper hinged part of the chute R can be turned so that its lower end comes opposite a discharge-chute R² and spout Z, into which the coin then drops and whence it can be removed. If the desired line is at disposal or the connection made with the proper line, the attendant at the central station sends a current through L, t , J, and T (parallel shunt) to the caller and gives the word "Call." The current by means of a relay D causes the closing of the local battery Z' K', the current of which excites the aforesaid electro-magnet N, whereby the armature A is attracted, its carrier m turned to one side, and the coin released. It will therefore drop into the lower continuation R' of the chute; but as the carrier m is turned and the coin let fall into the chute the same will be momentarily checked by the middle segment-wheel r' and can only drop upon the lowest segment-wheel r^2 , when the current is again interrupted and the middle segment-wheel r' is brought into its position of rest. The conversation ended, the called-up person gives the closing signal and causes the current to attract the armature A and to turn the carrier m so that the coin can drop farther and fall into the cash-receptacle C. As it is about leaving the lower part of the chute it falls upon a second lever i' , moving it down and by a diagonal rod connection to the upper lever i' bringing the latter back into its horizontal position, whereby the circuit is also broken.

If the called person omits the closing signal, the attendant at the central station is not

immediately after close of the conversation caused to repeat this in order to cash the coin. In order, therefore, that the apparatus under all circumstances shall be put timely into the position of rest ready for the next use of it, a lateral roller U is provided behind the coin-slit, and which is pushed to one side by the coin to be inserted, and by a lever connection causes the armature-lever A to be moved as when attracted. The first coin is thus cashed, and the contact is thereby broken, while the next coin meanwhile passes the test-conduit. In order that in this case the microphone-battery may not be needlessly exhausted, I provide in its local circuit a disconnecting-lever u , Fig. 3, with hook for hanging the telephone thereupon again when the conversation is ended, and thus breaking the circuit.

The point of contact B, Fig. 1, between the coin and the uppermost segment-wheel r is so arranged that the segment-wheel would be turned by the coin; but to prevent that the armature is provided with pawl-arm h , which falls into a notch in the second segment-wheel r' , and sufficient lost motion is provided in the slot in the first segment-wheel r , wherein the peg of the carrier m enters, so that the pawl h is disengaged before the first segment-wheel moves.

A spring e is provided at the lowest segment-wheel r^2 to act as a counter-force and to cause the one-sided contact of the tooth of the segment-wheels. The circuit arrangement referred to is intended for public telephone-stations—that is, for telephone-stations which are not called up; but evidently the apparatus may also be connected with subscribers' stations, in which case the call-bell W on the one hand, as usual, is on the contact of rest of the telephone hook-lever H' and on the other hand connected to the relay; but the latter is directly connected to earth. The telephone-battery is separated from the common battery.

Having now particularly described and ascertained the nature of my said invention and the manner in which the same is to be performed, I declare that what I claim, and wish to secure by Letters Patent, is—

1. An automatic coin-feed telephone consisting of the coin-conduit P and chute R R', having wheel-segments r r' r^2 projecting into the same and geared together, in combination with an electro-magnet N, having armature A, having spring f and pivoted at a , and carrier m , engaging into the uppermost wheel-segment r , substantially as described.

2. In combination with the conduit P, chute R R', and wheel-segments r r' r^2 , projecting into said chute, the contact-forming lever i , arranged to project into chute R above the upper segment-wheel and the contact-breaking lever i' below the lowest segment-wheel in the chute R², and connecting-rod g between said levers, substantially as described.

3. In combination with the conduit P, chute

5 R R', and wheel-segments r r' r^2 , projecting into said chute, the lever U, attached to the armature A and projecting with its roll into the conduit P at its mouth I, substantially as described.

4. In combination with the conduit P, chute R', and wheel-segments r r' r^2 , projecting into said chute, the chute R, pivotally arranged at x , the exit-chute R² and spout Z,

the lever H of chute R, and button K, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRANZ MÜLLER.

Witnesses:

WILHELM VOGT,
FRED M. AYLSWORTH.