R. E. PEDIGO.

ATTACHMENT FOR TELEPHONES.

APPLICATION FILED JULY 13, 1908.

923,882. Patented June 8, 1909.

Fig. 2.

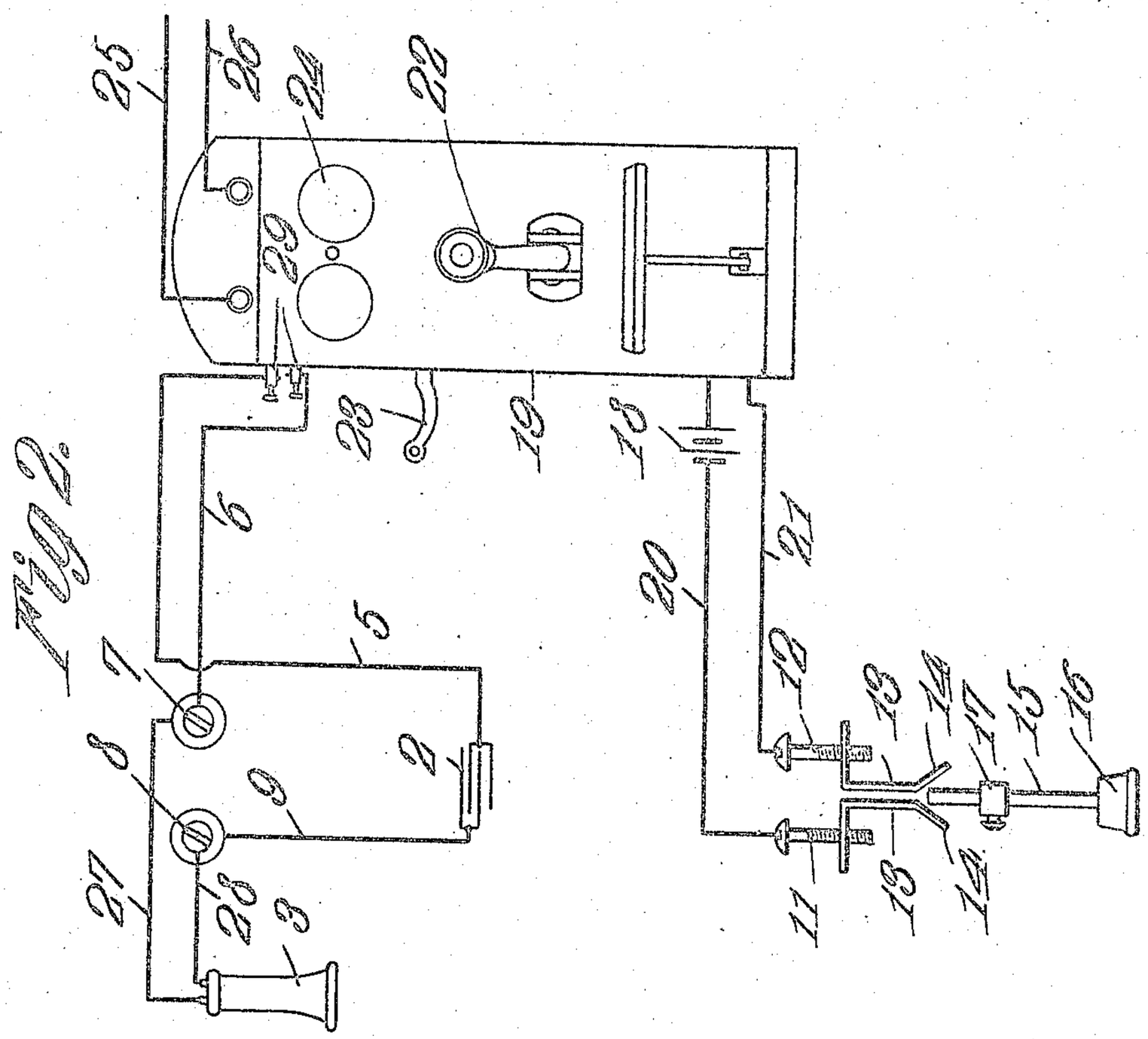
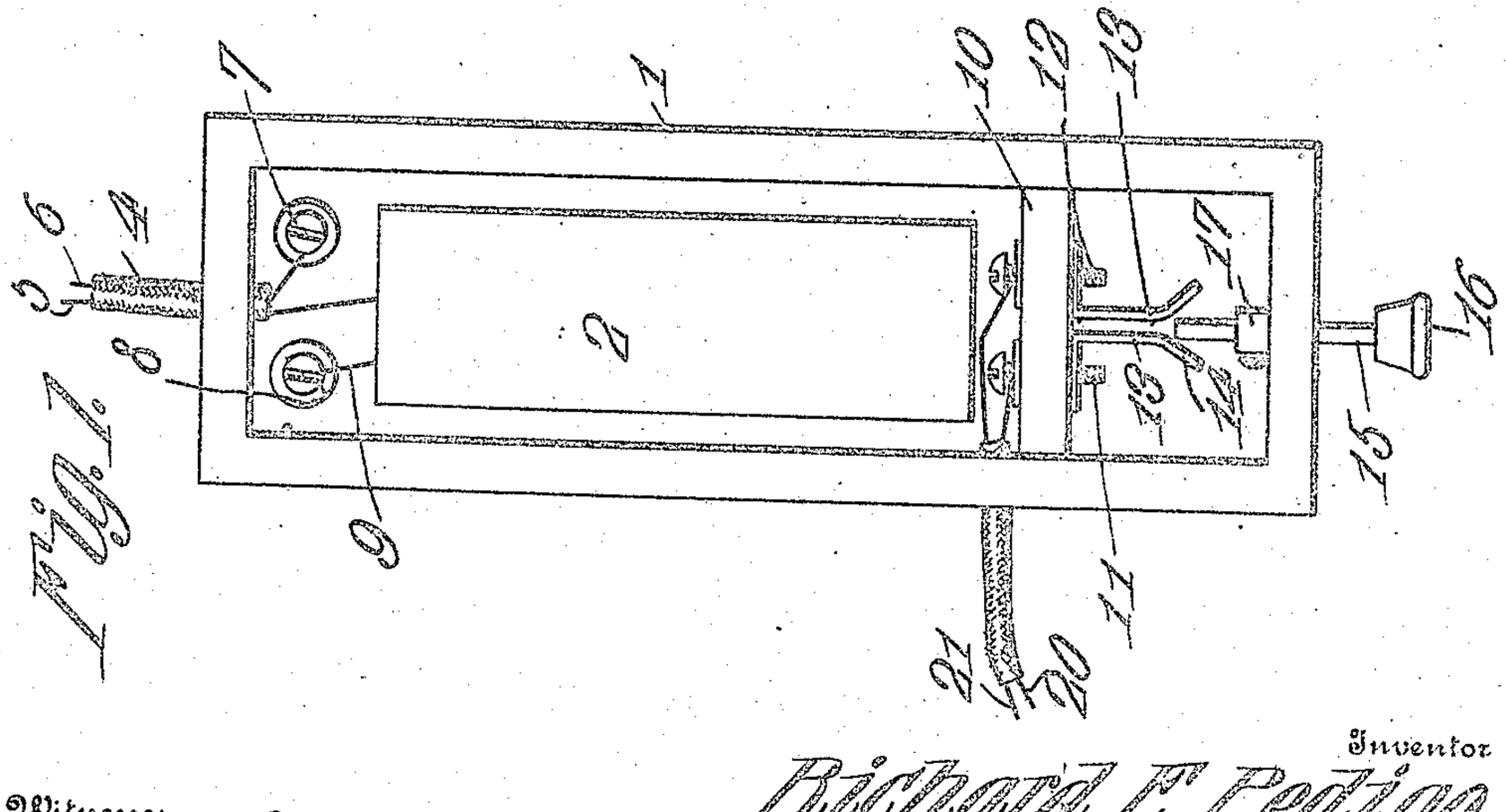


Fig. 1.



Witnesses

E. W. Hobert

F. T. Hagman.

Inventor

Richard E. Pedigo

By Cox & Co

Attorneys

UNITED STATES PATENT OFFICE.

RICHARD E. PEDIGO, OF CHARITON, IOWA.

ATTACHMENT FOR TELEPHONES.

No. 923,882. Specification of Letters Patent. Patented June 8, 1909.

Application filed July 13, 1908. Serial No. 443,300.

To all whom it may concern:

Be it known that I, RICHARD E. PEDIGO, a citizen of the United States, residing at Chariton, in the county of Lucas and State of Iowa, have invented a new and useful Attachment for Telephones, of which the following is a specification.

This invention has reference to improvements in attachments for telephones and more particularly for use in connection with multi-party telephone lines.

In multi-party lines and more particularly in rural districts the sending of a signal over a line results in a number of the subscribers removing their receivers from the receiver hooks. Under such circumstances, if the proper subscriber does not respond to the call it becomes practically impossible to send another call over the line because of the fact that the signal will traverse the receiver coils of those receivers which have been removed from their hooks. Under such circumstances, the calling station must await the replacing of the removed receivers on the hooks before the proper signal can be repeated, and this procedure is not only annoying but time consuming.

It is the object of the present invention to provide a means whereby the removal of any or all the receivers from the receiver hooks in a multi-party line will not interfere with the transmission of signal currents over the line and the reception thereof by the proper subscriber's set.

The coils of the signal bells are usually of high resistance and the magnetos are suitably designed to generate a current of sufficiently high voltage to properly energize the coils of the signal bells. To such a current the coils of the receivers present low resistance so that when the telephone receiver is off the hook and no longer cut out by the contact controlled by the hook, then the path through the receiver will shunt so much of the magneto current that the bells will not respond, so that it is practically impossible to send a signal over the line when the receivers are off the hooks.

The present invention provides a means whereby the effect of the low resistance of the telephone receiver coils is neutralized and the magneto currents will therefore sufficiently energize the signal bell coils even when the receivers are off the hooks and consequently whether the receivers be on the hook or off the hook there will be no difficulty in sending signals over the line.

The present invention is designed as an attachment for ordinary existing telephone sets already installed in telephone lines and which attachments may be inserted by persons unskilled in the installation of telephone lines and without in any manner changing the structure of the ordinary telephone set or requiring changes in the connections which could only be made by a person skilled in the installation of telephone lines.

The invention includes a suitable condenser of a capacity properly chosen so as to be readily traversed by the speaking current but which is practically impervious to the signal current so that when the telephone is off the hook the signal currents will no longer find a path of low resistance through the telephone coils but will traverse the bell coils the same as it does when the receiver is on the hook and thereby cut out of the circuit.

Since the saving of battery is important in rural lines, and since it is advisable to provide the capacity necessary in the form of a condenser separate from the ordinary telephone set so as to be readily inserted in an ordinary telephone line already installed, it is customary to inclose a suitable condenser in a case and in the same case provide a switch or plug cut out for the transmitter battery; thus in the practical embodiment of the present invention, there is provided a means which may be readily included in telephone lines already installed without change in said lines for the inclusion therein of both the necessary capacity and the cut out for the transmitter battery.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings, Figure 1 is a plan view of the attachment constituting the subject matter of the present invention with the cover of the case removed. Fig. 2 is a diagram showing the application of the invention to an ordinary telephone line.

Referring to the drawings, there is shown a suitable casing 1 in which is mounted a condenser 2 of proper capacity to prevent the passage of the magneto current through the coil of the ordinary telephone receiver which is indicated at 3 in Fig. 2.

Leading into the casing 1 is a two-conductor cord 4, inclosing two conductors 5—6. The conductor 5 as indicated in the drawings leads to one teriminal of the condenser, while the conductor 6 leads to a binding post 7 carried by the case 1. This case 1 also carries another binding post 8 which is connected to the other side of the condenser by a conductor 9.

The casing 1 is divided in its interior in two chambers by a partition 10, one of the chambers inclosing the condenser 2. Passing through the partition 10 are two screws or bolts 11—12 carrying at the ends remote from the chamber inclosing the condenser 2, each a spring plate 13, the two spring plates being in parallel relation and close to each other and having their free ends out-turned as indicated at 14. Passing through one end of the casing 1 into the chamber containing the spring plates 13 is a rod 15 having its inner end so located as to be readily inserted between the plates 13 and electrically bridge the same, the said rod 15 being made of metal. The outer end of this rod is provided with an insulating button or handle 16 and on the rod within the casing is an adjustable sleeve 17 preventing the rod from falling out of the casing and also acting as a stop for preventing the movement of the free or inner end of the rod between the spring members 13 to too great an extent, the adjustable collar 17 engaging the flaring portions 14 of said spring members when the free end of the rod is pushed in between said spring members.

In Fig. 2 the transmitter battery is indicated diagrammatically at 18, and outside of the casing 19 of the subscriber's telephone set. It will be understood however, that this battery is located within the casing and is only shown outside thereof for illustrative purposes. The terminals of the battery and transmitter circuit are connected by conductors 20 and 21 to the screws 11 and 12 respectively so that the battery circuit of the transmitter is brought to the spring members 13—13 as terminals of such circuit, and this circuit may be completed at will by moving the conducting rod 15 in between the spring members 13 and may be broken at will by pulling the rod 15 out of contact with these two spring members 13. By this means the battery 18 may be cut out of action when a subscriber is listening to an incoming message and may be again coupled up for action when the subscriber desires to transmit a message over the line.

In Fig. 2 the transmitter is indicated at 22, and the telephone hook is indicated at 23 while the signal bells are indicated at 24 and are of the type responsive to magneto produced alternating current transmitted over the line in the usual manner.

The subscriber's telephone set more or less diagrammatically represented in Fig. 2 is to be considered as of the ordinary type, and need not differ in any particular from that ordinarily used on rural and other lines. This telephone set is connected up in the usual manner in the line wires 25—26.

In installing the attachment in the ordinary telephone line and particularly multi-party lines found in rural districts, the conducting cord of the receiver 3 which in Fig. 2 is represented by the two conductors 27 and 28 is disconnected from the terminals of the subscriber's set, which terminals are represented in Fig. 2 at 29 and the ends of these conductors 27 and 28 are connected up to the two binding posts 7 and 8 of the attachment which is preferably secured at any convenient point exterior to the telephone set of the subscriber, say at a convenient place on the wall within the reach of the person talking or at any other convenient point. The two conductors 5 and 6 are connected to the respective terminals 29, and the two conductors 20 and 21 coming from the terminals 13 under the control of the bridging plug 15 are connected up in series with the transmitter battery 18.

Suppose now that a signal comes over the line in the usual manner, assuming that the receiver 3 is in proper place upon the hook 23. This signal will operate the bells 24 and as is usually the case will be heard by all the subscribers upon the particular multi-party line. It is quite customary for different subscribers, curious to know what is going on over the line to remove their telephone receivers from the hooks 23 in order to listen to the conversation passing over the line, and as soon as the signal is heard some subscribers remove their telephone receivers at once from the hooks. It often transpires that the called subscriber does not respond promptly and it is necessary to send another call and perhaps two or three calls extra. So long as all the telephone receivers remain upon their respective hooks the signals are transmitted over the line without difficulty, since the only path for the magneto current is then through the signal bell coils, but as soon as one or more of the receivers are removed from their hooks then there is introduced into the line the receiver coils which offer such low resistance to the current produced by the magneto that it is practically impossible to repeat the call so long as the telephone receivers remain off the hooks. Again, from carelessness users do not always replace the telephone receivers on the hooks and it is then practically impossible to call up those same subscribers over the line, thus often times cutting the entire line out of use much to the annoyance and loss of the other subscribers.

With the condenser 2 introduced into the circuit with the receiver coil when the said receiver is off the hook, the low resistance

path due to the introduction of the receiver coil in the line is neutralized to such an extent that operative currents sent over the line from the magneto generator will flow through the bell coils and the signal bells will respond to such transmitted currents.

The introduction of the condenser does not interfere with the transmission speech impulses since the condenser is freely pervious to alternating currents of the talking circuit, in fact the condenser may aid in a measure in reducing the impedance to the talking current of the receiver coil, and so permit the passage over the line of more intense talking currents than would otherwise be the case. The introduction of the condenser is in no wise harmful to the talking circuit but under ordinary conditions is beneficial thereto.

When the telephone receiver 3 is in use and the operator wishes to listen without keeping the battery of the transmitter in circuit, the button 16 is grasped and the bridging pin 15 is withdrawn from between the spring terminals 13. When it is desired to talk over the circuit then the bridging pin 15 is pushed in between the terminals 13 and the battery circuit to the transmitter is thereby completed. Of course, when the receiver is placed back on the hook 23 the battery 18 is cut out in the usual manner.

What is claimed is:

1. An attachment for telephone sets, comprising a suitable casing, a condenser housed therein, means for coupling the condenser up in series with a telephone receiver, contact terminals also within the casing, a bridging member for the said contact terminals accessible from the exterior of the casing at the end remote from the condenser, and conductors leading from the said contact terminals and adapted to be connected up in the battery circuit of the telephone set.

2. An attachment for telephone sets comprising a suitable casing, a condenser housed therein, means for coupling the condenser up in series with a telephone receiver, spring contact terminals also within the casing, a bridging member for said contact terminals comprising a rod extending and slidable through the end of the casing remote from the condenser, the outer end of the rod being provided with an insulating handle, and an adjustable collar on the rod within the casing, and conductors leading from the said contact terminals and adapted to be connected up in the battery circuit of the telephone set.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

RICHARD E. PEDIGO.

Witnesses:

E. S. WELLS,

S. C. HICKMAN.