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PATENTED FEB. 5, 1907.

K. M. TURNER & W. F. H. GERMER.
TELEPHONE DICTATING MACHINE OR APPARATUS.

APPLICATION FILED APR. 30, 1906.

2 SHEETS—SHEET 1.

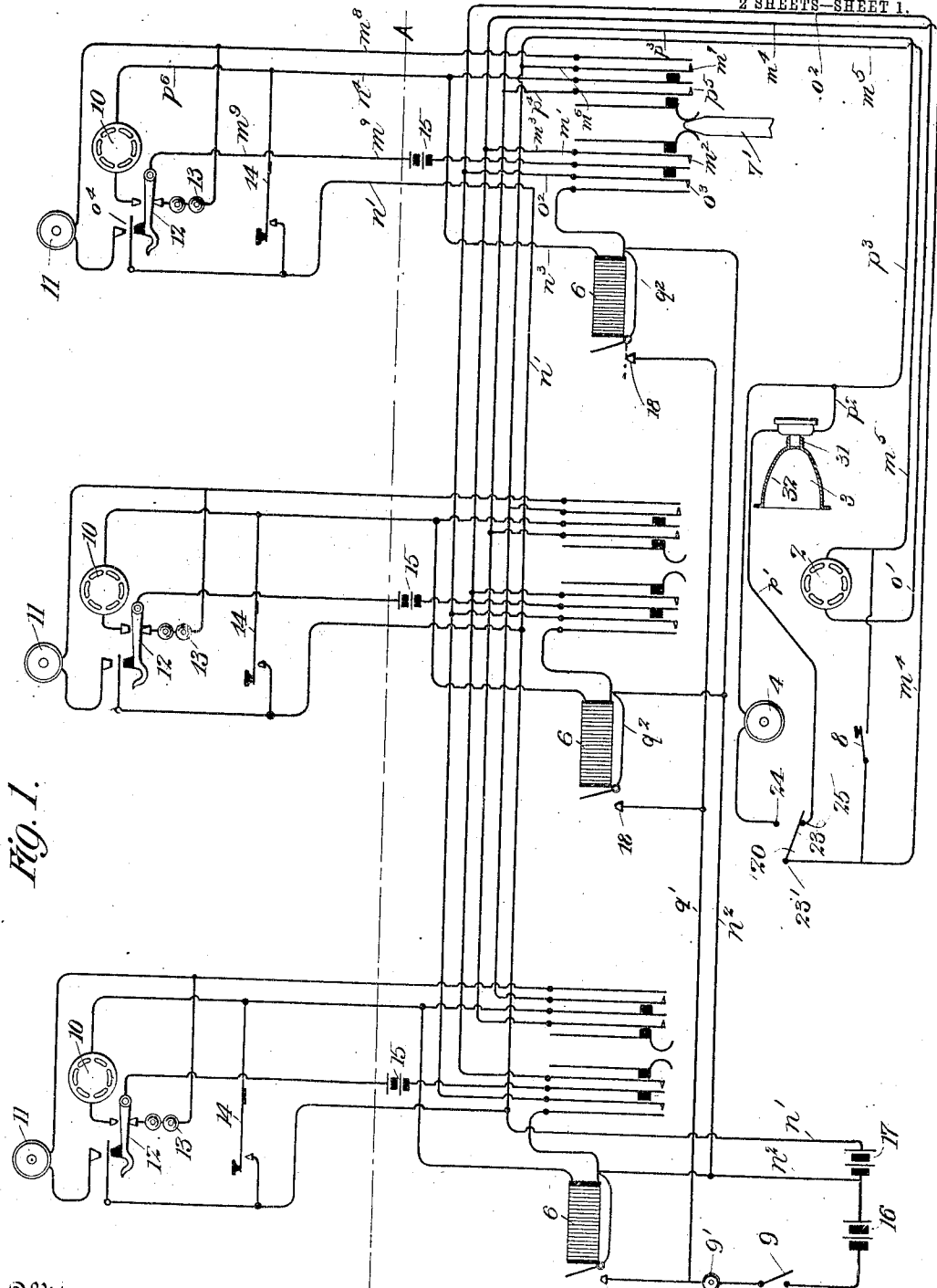


Fig. 1.

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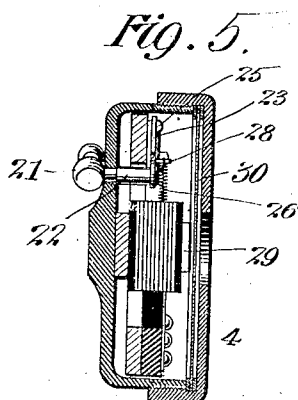
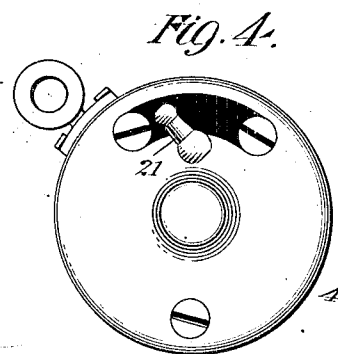
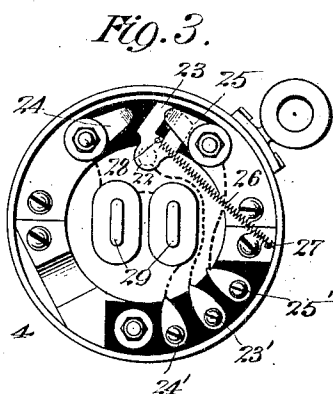
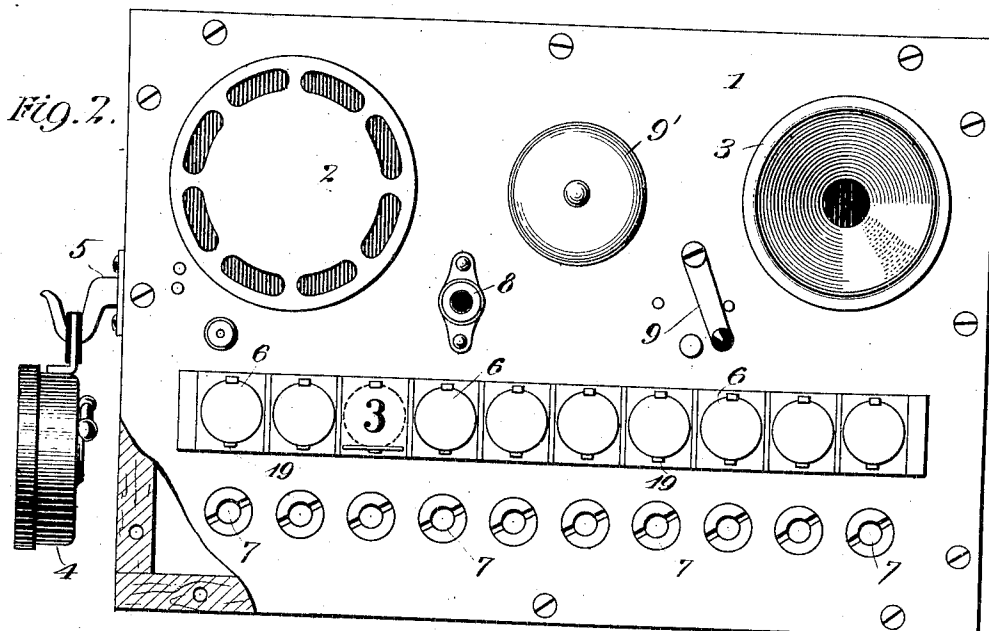
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2 SHEETS—SHEET 2.



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James O. ...
Waldo M. Chapin

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By their Attorneys
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UNITED STATES PATENT OFFICE.

KELLEY M. TURNER, OF NEW YORK, N. Y., AND WILLIAM F. H. GERMER, OF HOBOKEN, NEW JERSEY; SAID GERMER ASSIGNOR TO SAID TURNER.

TELEPHONE DICTATING MACHINE OR APPARATUS.

No. 843,186.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed April 30, 1906. Serial No. 314,400.

To all whom it may concern:

Be it known that we, KELLEY M. TURNER and WILLIAM F. H. GERMER, citizens of the United States, residing at the city, county, and State of New York, and Hoboken, in the county of Hudson and State of New Jersey, respectively, have invented certain new and useful Improvements in Telephone Dictating Machine or Apparatus, of which the following is a full, clear, and exact description.

Our invention relates to what we shall term a "dictograph," being a telephonic system or apparatus by which a person—for example, the manager of an office—may dictate letters to any one of his corps of stenographers without requiring them to leave their places at their own desks.

The principal object of the invention is to secure by telephony all of the conditions which occur when the stenographer or stenographers are actually present at or within speaking distance of the manager's desk.

With these and other objects in view the invention consists in the construction, combination, in the location, and in the arrangement of circuits and parts, as hereinafter set forth and shown in the accompanying drawings, and finally particularly pointed out in the appended claims.

In the drawings, Figure 1 is a diagrammatic view showing the arrangement of circuits which we employ. Fig. 2 is a front view of what we shall term the "manager's" instrument. Figs. 3, 4, and 5 are respectively inside, rear, and sectional views of the manager's receiver.

By the ordinary telephone system, a central operator is able to talk to any selected persons on connecting-lines, but the conditions are not at all the same as if the communicating persons were in the same room and directly speaking to one another. The first point of difference is that the speaker has to direct the sound closely into the telephone-transmitter. For best effects the speaker is about two inches from the mouthpiece, so that his action resembles talking into a speaking-tube more than the act of general conversation in a room. The second point is that the person at the receiving end has to listen with the receiver at his ear. The third point of difference is that both cannot very well talk at once, since the sound goes over a single pair of line-wires. Also the receivers

at each station are in circuit with both transmitters, so that either receiver gets not only the sound transmitted from the other station, but sound at the transmitting-station.

By our invention we make use of what we shall term a "loud earpiece," or, in other words, a "loud-speaking-telephone receiver." This is in itself not a novel feature, since loud-speaking-telephone receivers are well known; but we also employ a special form of transmitter which obviates the necessity of the operator standing anywhere near the mouthpiece. In addition to this we so arrange the circuits as to avoid delivery of the sound spoken at each end into the receiving instrument at that end of the line.

The invention also has in view many incidental features—for example, the connection of any individual stenographer and certain indicating means to indicate when the stenographer is ready and means for conveniently putting into circuit either the loud earpiece or an ordinary receiver, a special calling system, a switch in constant reach of the operator's or manager's fingers by which the ordinary receiver or the loud earpiece may be thrown into action, and many other features which we have worked out so as to obtain all the conditions of a manager dictating to a stenographer directly at his desk, while, in fact, the stenographer is at a remote point—for example, in the stenographer's room at a different part of the building.

We will first briefly describe the various parts of the apparatus and afterward consider the operation, and trace the various electric currents which traverse the different circuits.

Referring to the drawings, in which like parts are designated by the same reference-sign, 1 indicates the manager's instrument, which is convenient in the form of a rectangular box or casing or any sort of adjustable arm attached to the manager's desk. This instrument has in its face an acousticon-transmitter 2 and a loud earpiece 3, which for certain practical reasons is separated quite widely from the transmitter 2.

4 indicates a specially-constructed telephone-receiver hung upon a permanent or fixed hook 5. The details of this receiver are illustrated in Figs. 3, 4, and 5 and include a special form of switch for a purpose which will later appear.

6 indicates annunciator-drops, which may be of the ordinary sort employed in telephone-switchboards, and 7 indicates apertures for an ordinary plug or jack by which certain connections are made.

8 is an ordinary push-button, and 9 a switch, which serves certain functions hereinafter described.

9' designates an ordinary call-bell.

Referring now more particularly to Fig. 1, the various devices above mentioned and forming part of the manager's instrument, together with the circuits and connections therefor, are all illustrated beneath the dot-and-dash line A A. Above the dot-and-dash line A are indicated three branch lines, which correspond to separate stenographers' instruments. The stenographer's instrument includes an acousticon-transmitter 10, adapted to receive spoken sounds at any reasonable distance therefrom, and an ordinary telephone-receiver 11. 12 indicates an ordinary telephone-hook by which the receiver is hung up, and 13 indicates the usual call-bells. 14 denotes a push-button or switch conveniently disposed at each stenographer's instrument.

For the purpose of supplying the necessary electric current, a number of batteries 15, 16, and 17 may be used, and which are conveniently situated at the manager's end of the line, about or within his desk or about his office. As will be seen from the diagram of circuits in Fig. 1, each annunciator-drop 6 is adapted to close a special circuit at the points 18 whenever an annunciator-drop falls to expose the number beneath. In practice this connection is made by a lever or blade at the point 19, Fig. 2, although the connection may be made to occur in any way so as to be completed whenever the annunciator-drop falls.

20, Fig. 1, indicates a switch which in practice we make as part of the manager's receiver. Referring to Figs. 3, 4, and 5, the handle of this switch is shown at 21. 22 designates the shaft or spindle of the switch, which carries a switch-blade 23.

24 and 25 indicate spring contacts or plates in the path of the switch-blade, which engage the same with a certain amount of frictional resistance. We also provide a spring 26, secured to a fixed point 27 on the casing and attached to the switch-blade at the point 28, so as to normally impel the same against the plate 25, although the blade remains in contact with the plate 24 if it is engaged therewith. The spring serves to prevent the switch-blade from remaining in a mid-position under any circumstances and also exerts a slight impelling force in a direction to throw the loud earpiece into circuit. The usual magnets and the diaphragm are respectively shown at 29 and 30, and electric connections are made from terminals 24', 23',

and 25' as follows: from connection 24', through the magnet 29, to spring-plate 24; from connection 23' directly to switch-blade 23; from connection 25' directly to spring-plate 25.

Referring now again to Fig. 1, we will describe the various conditions and operations which take place and the electrical circuits which are completed in the normal operation of the apparatus. The diagram of circuits shows the apparatus in its normal or passive condition when no one is talking. We will suppose the manager wishes to dictate a letter to the stenographer at station No. 3. Under these circumstances he takes the plug 7' and inserts it in the aperture 7 of station No. 3. He then presses the push-button 8, completing the following circuits: from battery 15 at station No. 3 downward through wire m' , spring-contacts m^2 , with the wires $m^3 m^4$, push-button 8, (depressed as above described,) wire m^5 , connection m^6 , contact m^7 , wire m^8 , stenographer's call-bell 13, hook 12, wire m^9 , back to battery. Thus the call-bell of station No. 3 rings, and the stenographer takes her receiver off the hook and presses the button 14. This completes the following circuit: from button 14, through wire n' , battery 17, wire n^2 , annunciator 6, which is the third one on the manager's instrument, causes it to drop into the dotted position shown, wires n^3 and n^4 , back to the push-button 14. In this way the manager learns that stenographer at station No. 3 has correctly received his signal and is ready to take his dictation. He accordingly proceeds with the dictation in an ordinary voice and without any necessity of placing his lips close to the transmitter. This is on account of the fact that an acousticon-transmitter is used, so that the manager may dictate at his desk or in any convenient manner, exactly as suits his habit of dictation when a stenographer is present in the room. The talking-circuit under these circumstances is completed as follows: from acousticon-transmitter 2 through wires $o' o^2$, contact o^3 , wire n^2 , battery 17, wire n' , contact o^4 , (now completed,) stenographer's receiver 11, wire m^8 , contact m^7 , and wire m^5 , back to the acousticon-transmitter 2. This is therefore a closed circuit, including the transmitter, a battery, and the stenographer's receiver, as required. The dictation proceeds in the usual way, and under these circumstances the stenographer will frequently desire to ask about the nature or spelling of a word or name or ask to have a sentence repeated or further data given, and under these circumstances it is merely necessary for her to remark the facts in an ordinary tone without placing her lips to the transmitter or in any way removing her attention from the notebook before her. The stenographer's remark is received in the acousticon-trans-

mitter 10 at her station and is received in the loud earpiece at the manager's instrument by an entirely separate circuit from the manager's talking-circuit. This circuit is as follows: from the stenographer's acousticon-transmitter 10, through hook 12, wire m^9 , battery 15, wire m' , connection m^2 , and wires m^3 and m^4 , switch-blade 23, wire p' , loud earpiece 3, wires p^2 , p^3 , and p^4 , connection p^5 , wire n^4 , connection p^6 , back to the acousticon-transmitter 10. It will be observed that in this circuit a separate set of line-wires are traversed than in the case of the manager's talking-circuit. In this way there is no interference of the messages and no confusion. It will also be seen that the manager's talking-circuit does not include his own receiver, nor does the stenographer's talking-circuit include her receiver. This also obviates the confusion which would otherwise occur on account of the loud transmitters and loud earpieces, which are of course an essential with a dictograph.

While the instrument is particularly designed for the purpose of dictating to the corps of stenographers, it is also adapted for communication with various heads of departments about the building in the same way as an ordinary telephone. In this case, however, the convenience is promoted by the loud-speaking and loud-receiving features. In some cases, however, it may be undesirable to have the reports of the various officers in the building received at the loud earpiece in the manager's office. This is particularly the case when outsiders happen to be present therein. Under these circumstances the manager takes the receiver 4 off its hook and presses the switch-lever 21. This moves the blade 23 away from plate 25 and into contact with spring-plate 24. As will be clear from Fig. 1, this has the effect of cutting the loud earpiece 3 out of circuit and cutting the ordinary receiver 4 into circuit. Thus the manager is able to receive messages by the loud earpiece or the ordinary receiver at will, according to which happens to be desirable.

An additional feature of our apparatus relates to the means by which the stenographer at any station or a foreman or superintendent of any department may call up the central manager. It frequently happens that the manager calls up some one in the manner above described, but the party is temporarily absent. It is therefore desirable to have the apparatus arranged so that the manager may go on about his business or other matters and be notified when the absent party returns. Therefore when the manager calls up a party and finds him absent he moves over the switch-lever 9 on his instrument and then goes on with his other business. When the absent party returns and presses the button 65 14, which drops the corresponding annun-

ciator in the manner above described, a ringing-circuit is also completed, as follows: from push-button 14, wire n' , through battery 17, battery 16, bell 9', wire q' , contact 18, (which has been dropped at this time in the manner already described,) wire q^2 , magnet 6, wires n^3 n^4 , back to the push-button 14. In this way the manager's call-bell 9' is rung in addition to the drop of the annunciator for the station called. The manager then responds and completes his conversation in the usual way. It will be observed that the above calling-circuit from the receiving or stenographer's stations to the manager's station is wholly independent of whether or not the manager's jack is in position. It is therefore possible for the manager to be dictating to another stenographer when the call is received from the returned absent party, which fact is indicated by the drop of the appropriate annunciator and the ringing of the manager's bell, if desired. The manager then plugs in his jack to complete the talking-circuits. In like manner the manager may always be called by any party about the building; but such party cannot break into the manager's conversation until he is ready, which fact is announced by his plugging in the proper jack and pressing the button 8.

A feature of the invention relates to the recording of conversations which occur in the manager's office. When this is desired, the manager plugs in a stenographer who has been instructed to take down such conversation, and thereupon she hears and records all of the conversation which occurs in the manager's office. This is frequently advantageous for the purposes of evidence, &c.

As for the particular instruments employed we have found extremely successful in practice the acousticon-transmitter described in Letters Patent No. 711,974.

The receiver at the manager's station may embody the same principles in the construction of diaphragm, having of course the switch mechanism illustrated in Figs. 3, 4, and 5. The loud earpiece 3 is conveniently made by forming a protuberance or boss upon an ordinary or the above type of receiver and fitting upon this a horn or reinforcing-cup 32. The instrument is of course wound and adjusted to give a loud-speaking quality.

The construction of the annunciators 6 and the jacks 7 7' may be of any ordinary or approved construction.

What we claim is—

1. In a telephone system or apparatus, a manager's instrument having a loud earpiece and an ordinary receiver, and means on the receiver for throwing either such receiver or the loud earpiece into the talking-circuit.

2. In a telephone system or apparatus a

manager's instrument having an acousticon-transmitter and a loud earpiece, and means for putting said instruments simultaneously into separate talking-circuits.

3. In a telephone system or apparatus, a manager's instrument, and stenographers' stations, an ordinary receiver and a loud earpiece at the manager's station in one talking-circuit, a transmitter also at the manager's station in a separate talking-circuit, and means for including either the ordinary receiver or the loud earpiece in one talking-circuit at will.

4. In a telephone system or apparatus, a manager's instrument, a plurality of stenographers' stations, a switch or button at the manager's instrument for closing a call-circuit to any stenographer's station, means at the stenographers' stations for completing an additional circuit, and an annunciator-drop actuated by said last-named circuit for indicating the station at which such additional circuit was completed.

5. In a telephone system or apparatus, a manager's instrument having a transmitter and a loud earpiece and having an ordinary telephone-receiver, a switch for throwing either said telephone-receiver or the loud earpiece into a circuit, a plurality of stenographers' stations each having a transmitter and an earpiece, and means whereby the manager's transmitter may be placed in one circuit including any stenographer's earpiece, and the manager's earpiece placed in another and entirely separate circuit including any stenographer's transmitter, as and for the purpose set forth.

6. In a telephone system or apparatus, a manager's instrument having a transmitter, a loud earpiece, a plurality of annunciator-drops in said manager's instrument, jacks in said instrument and arranged to complete a calling-circuit to any desired stenographer's station, and means at the stenographer's station for establishing a plurality of talking-circuits, one including the manager's transmitter, and the other including his loud earpiece.

7. In a telephone system or apparatus, a manager's instrument comprising a box or casing having a transmitter, a loud earpiece and a plurality of annunciator-drops inset in the face thereof, a plurality of receiving-stations, and means by which said receiving-stations are connected by separate circuits with said transmitter and the loud earpiece.

8. In a telephone system or apparatus, a manager's instrument comprising a box or casing having a loud earpiece inset therein, a receiver having a switch, a plurality of stenographers' stations, means for completing a pair of separate circuits to any desired stenographer's station, including either said receiver or the loud earpiece, and means for in-

dicating the stenographer's station called at the manager's instrument.

9. In a telephone system or apparatus, a manager's instrument comprising a box or casing with an acousticon-transmitter and a loud earpiece inset in its face, a plurality of annunciators also inset in the face of the manager's instrument, a plurality of receiving or stenographers' stations each having a receiver and an acousticon-transmitter, and means for connecting any desired stenographer's station by a plurality of circuits including the acousticon-transmitter at each end of the line and the receiver or earpiece at the other end of the line respectively.

10. In a telephone system or apparatus, a manager's instrument having a transmitter and a loud earpiece and having an ordinary telephone-receiver, a switch for throwing either said telephone-receiver or the loud earpiece into a circuit, a plurality of stenographers' stations each having a transmitter and an earpiece, a plurality of jacks and a plug whereby the manager's transmitter may be placed in one circuit including any stenographer's earpiece, and the manager's earpiece placed in another and entirely separate circuit including any stenographer's transmitter, as and for the purpose set forth.

11. In a telephone system or apparatus, a manager's instrument having a box or casing with a telephone-receiver and a loud earpiece inset therein, said instrument having a plurality of annunciators and jacks, a receiver at such manager's station, a plurality of receiving or stenographers' stations, means at the manager's station for calling any desired stenographer, circuits completed at said stenographer's station for dropping the annunciator corresponding to such station, and a pair of separate circuits from the manager's station to each stenographer's station.

12. In a telephone system or apparatus, a manager's instrument having a receiver and a loud earpiece, a receiving or stenographer's station, a talking-circuit arranged to be connected to said receiver or said loud earpiece, a transmitter at the manager's station, a receiver at the stenographer's station, and a talking-circuit therebetween.

13. In a telephone system or apparatus, a manager's instrument comprising a box or casing having an acousticon-receiver and a loud earpiece inset therein, said transmitter and earpiece being separated by an appreciable distance, a receiving or stenographer's station, and separate talking-circuits therewith including said transmitter and said loud earpiece.

14. In a telephone system or apparatus, a manager's instrument having a transmitter inset therein, a loud earpiece also inset in said manager's instrument, a telephone-receiver flexibly connected to the instrument

and having a switch by which either said receiver or the loud earpiece is included in the talking-circuit, a receiving or stenographer's station also in said talking-circuit, and an additional talking-circuit including said transmitter and a receiver at the stenographer's station.

In witness whereof we subscribe our signatures in the presence of two witnesses.

KELLEY M. TURNER.

WILLIAM F. H. GERMER.

Witnesses:

WALDO M. CHAPIN,

WILLIAM DONNAN.