

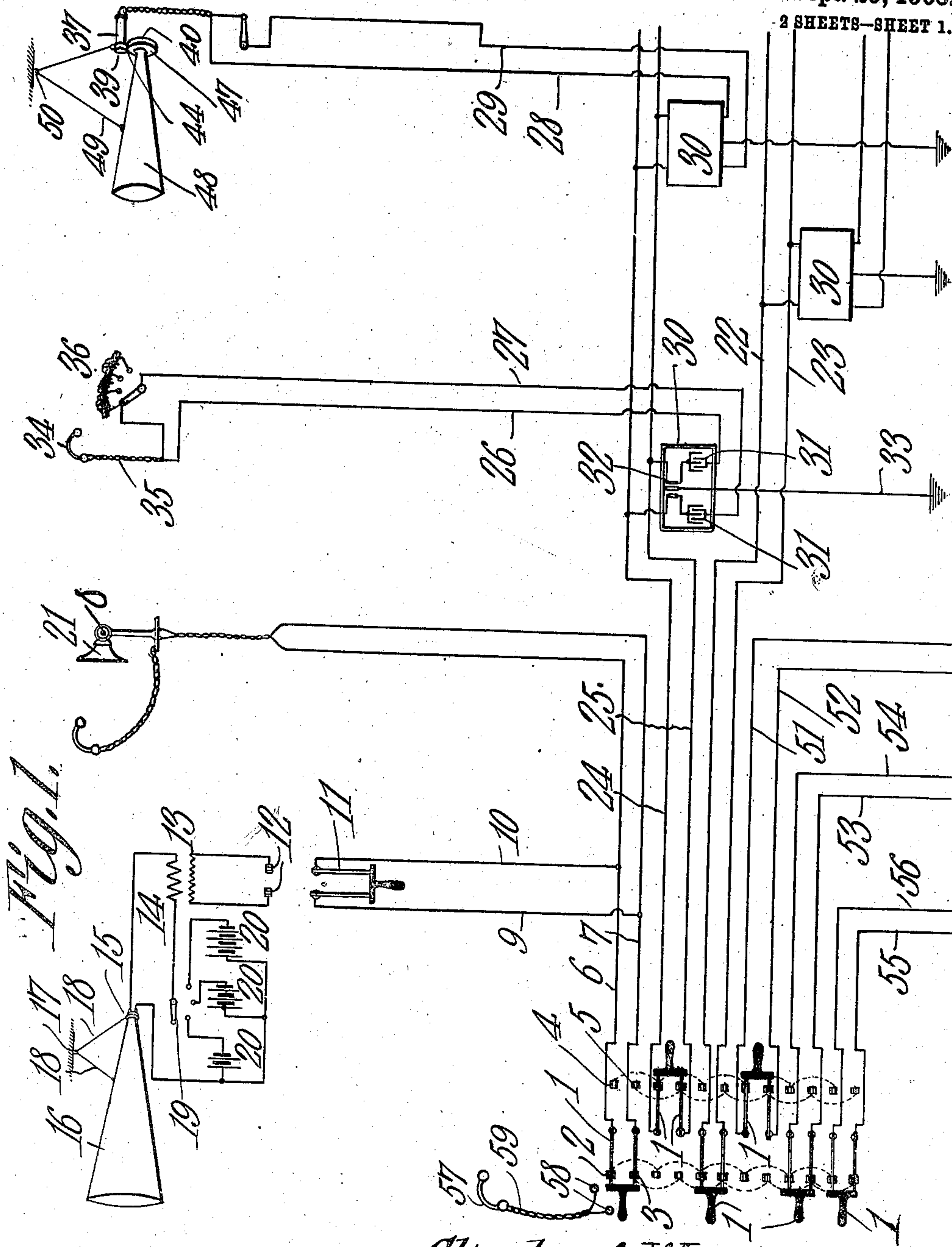
C. A. WARDNER.
PLEASUREPHONE.

APPLICATION FILED APR. 19, 1907.

Patented Sept. 29, 1908.

899,641.

2 SHEETS—SHEET 1.



WITNESSES:

E. J. Stewart
H. T. Chapman

Charles A. Wardner
INVENTOR

By *C. A. Snow & Co.*
ATTORNEYS

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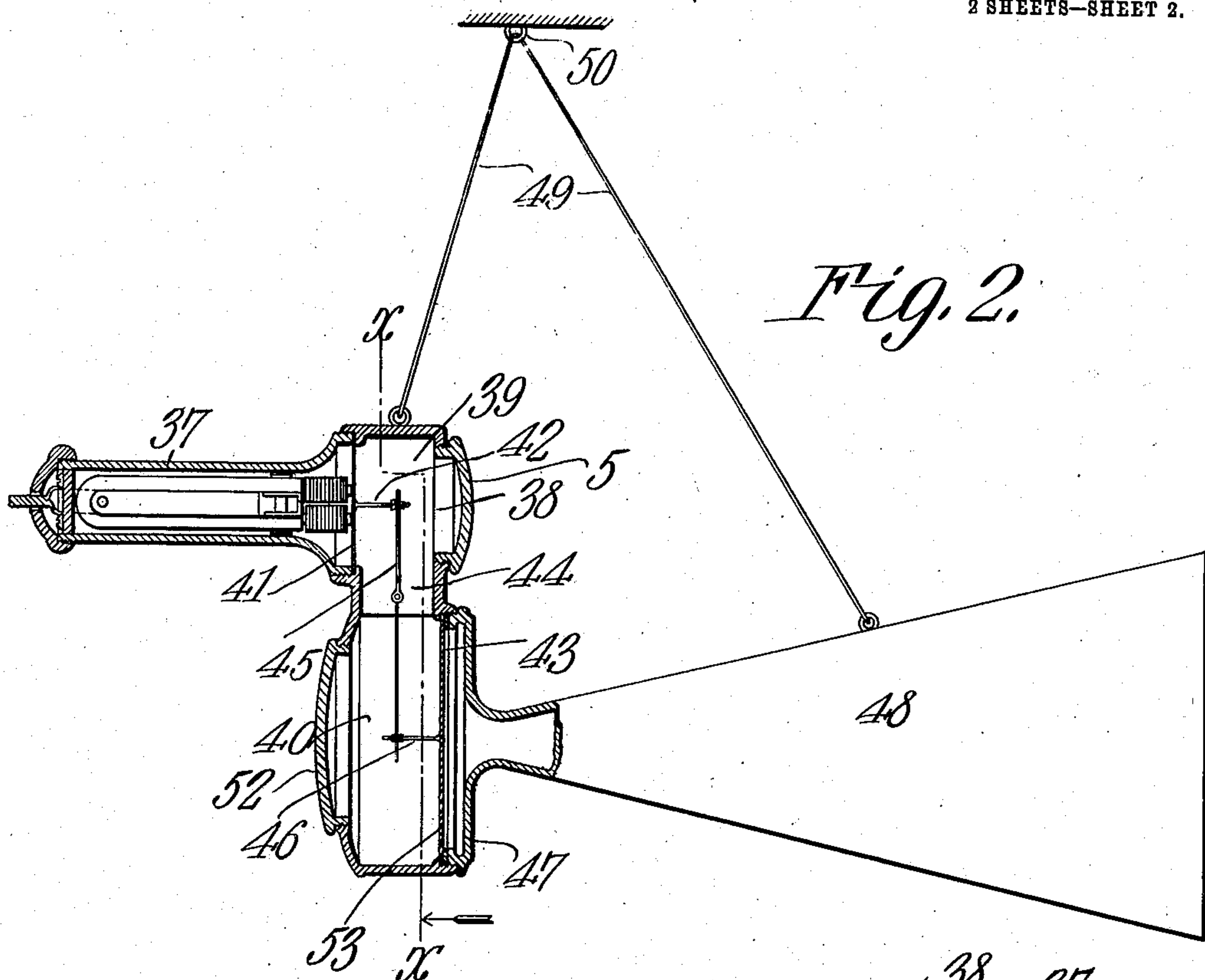


Fig. 2.

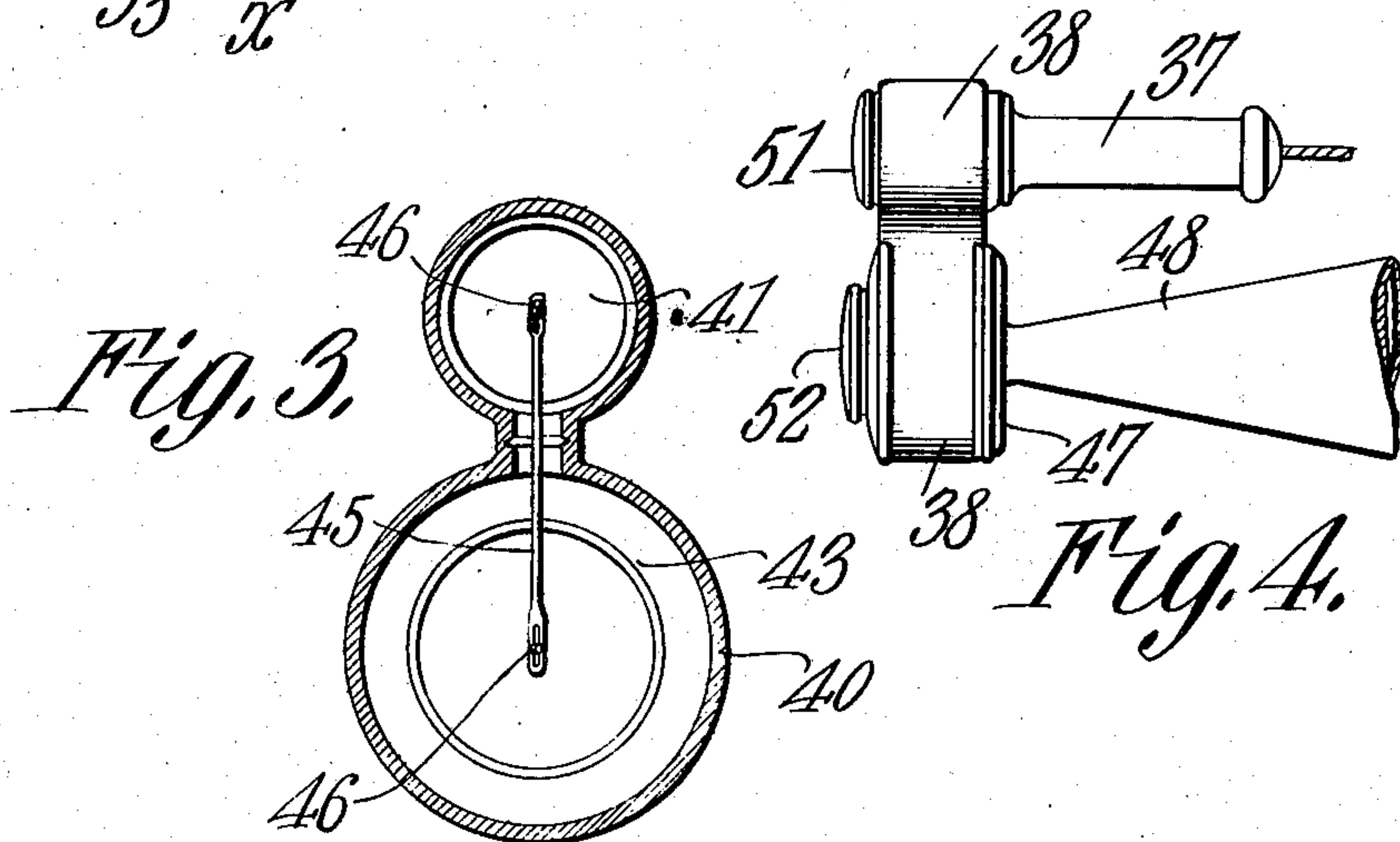


Fig. 3.

Fig. 4.

WITNESSES:

J. J. Chapman
J. J. Chapman

Charles A. Wardner,
 INVENTOR.

By *CA Snow & Co.*
 ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES A. WARDNER, OF BRUSHTON, NEW YORK.

PLEASUREPHONE.

No. 899,641.

Specification of Letters Patent.

Patented Sept. 29, 1908.

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To all whom it may concern:

Be it known that I, CHARLES A. WARDNER, a citizen of the United States, residing at Brushton, in the county of Franklin and State of New York, have invented a new and useful Pleasurephone, of which the following is a specification.

This invention has reference to improvements in pleasurephones, that is, in a system whereby any number of subscribers may be supplied with news and entertainment or both on the coöperative plan.

The object of the invention is to provide a number of subscribers with telephonic communication through a central point with one or more independent sources of news or entertainment, or with several differently located sources of entertainment so coacting as to produce a united effect, the whole system being so arranged as to prevent interference from extraneous sources of any character and also to prevent malicious or accidental interference by one or more subscribers with the reception of the news or entertainment provided for by the arrangement of the system.

The invention consists essentially of a central station having a means of communication with a source of entertainment or news, either located at the central station or at outlying points which may be so coupled that several entertainers may act in conjunction to perform their individual parts so that they may blend to produce a concerted effect, the same as the members of an orchestra or band, while performing individually, still blend into one harmonious whole. Since by this system each subscriber is provided with a receiver only, it is possible to use but two main conductors from which any number of subscribers may be branched as desired at any convenient point. It will be understood, of course, that there will be but one pair of conductors in any one direction from the central station to feed as large an outlying district as may be economically reached, and where it is desired to feed several outlying districts in different directions it may be more economical to provide a single pair of conductors for each district, especially where such outlying districts are in divergent directions. When the system is to supply news, this may be furnished directly from the central station or from some news center to which the main line may be coupled

up as desired, and the same may be true of the transmission of entertainment when any set of subscribers may be furnished with connection to a transmitter located, for instance, in an opera house in such position as to receive the music produced by singers or by a band or orchestra. But where it is desired to bring together upon the subscribers' main line the harmonious effect of the individual efforts of separated performers, each one of these performers will be provided with a transmitter and also with a receiver, preferably of the head type, so that all the performers will be in intercommunication and can therefore regulate and time their individual productions to harmonize with those of the others, and thus produce upon the subscribers' line the same total harmonious effect that is produced by the individual members of a band or orchestra or chorus when located at the same point and acting under the direction of a competent leader.

The invention comprises means for enabling a subscriber to control at will the volume of sound received, and to cut in or cut out his receiver, but otherwise the subscriber has no control whatever over the transmission of sound over the mains, and, therefore, cannot interfere, either accidentally or purposely, with the transmission of the sounds. For this reason there can be no marring or interruptions of the transmitted sounds and the subscriber hears only what it is intended he should hear.

The invention also comprises means for preventing interruptions due to the crossing of other circuits with the transmission circuit of this system, and it also comprises various details which will be fully set forth in the following description and illustrated in the accompanying drawings forming part of this specification, in which,—

Figure 1 is a diagrammatic view illustrating the working of the system; Fig. 2 is a longitudinal section, partly in elevation, through a form of amplifying receiver; Fig. 3 is a cross section of the same on the line $x-x$ of Fig. 2; and Fig. 4 is a view showing another arrangement of the structure shown in Fig. 2.

Referring to the drawings, there is shown a number of double-throw, double-pole, knife switches 1 arranged to make contact with circuit terminals 2—3 or 4—5. All the circuit terminals 2 are connected in series, as in

licated, and all the circuit terminals 3 are connected in series. Also, all the circuit terminals 4 are connected in series and all the circuit terminals 5 are connected in series.

5 The arrangement is such that if any switch 1 be placed in contact with circuit terminals 2—3, all the other circuit terminals 2—3 are included in circuit with the switch 1, and any other switch 1 that is moved into contact
10 with other of the circuit terminals 2—3 will be included in circuit with the first switch 1. The same is true of the circuit terminals 4—5, so that any switch 1 moved to make contact with any pair of circuit terminals 4—5 may
15 be included in circuit with any other switch in contact with these respective terminals 4—5.

The pivotal points of the switches 1 form the terminals of electric circuits coming from
20 or leading to various points. For instance, the uppermost switch 1 as shown in Fig. 1 has its pivotal points constituting the terminals of two conductors 6—7 leading to a microphone transmitter 8 which may be located
25 either at the central station or at some other point to be referred to later.

Branched from the conductors 6—7 are other conductors 9—10 terminating at a double-pole, single-throw switch 11 in the path of
30 which are terminals 12 of a circuit including the fine wire or secondary coil of an inductorian 13. The primary coil of the inductorian 13 is included in a circuit 14 which also includes a microphonic transmitter 15 to the
35 front of which there is attached a sound gathering and conveying horn 16 conveniently hung from some fixed point 17 by means of hangers 18, which may be in the form of light springs to prevent any jars affecting the horn
40 16. In the microphone circuit is included a switch 19 to cut in any one of a number of battery sets 20 connected up to give different voltage so that the operator may regulate the volume of sound sent out to the line to suit
45 the music being played in front of the horn 16. The transmitting mechanism included in the circuit 9—10 through the switch 11 is located at the central office, as is also the transmitter 8, which latter is provided with a
50 large mouthpiece 21 and may likewise be provided with a head-listening set, as indicated in the drawings. The battery connections of the transmitter 8 are not shown in the drawings. It will be understood, however, that
55 this transmitter 8 is indicative of a transmitter arranged for long battery strain and is designed to be very sensitive, and may at the same time be provided, as stated, with the listening head set. This transmitter 8 is
60 preferably of the desk type so that it may be used to such a position as to best suit the user. Such a transmitting set is intended for the use of musicians who may sing into the same while a band or other accompanying
65 source of music may be playing in front

of the horn 16, and the head set enables the musicians to follow the music and so keep in correct time.

Where there are a number of vocalists who will sing in concert, each will be pro- 70
vided, either at the central station or at his residence, with a transmitting set 8, and by proper connections at the central office the several vocalists may sing their parts into the transmitters 8, and by means of the head 75
listening sets are enabled to hear the other parts being sung and so keep in correct time the same as though all the vocalists were present at one point. The music thus
80 produced, when transmitted through a single line, will, of course, unite in one complex series of electrical waves which are the result of all the several series produced at the transmitters of the several vocalists, and
85 anyone provided with a suitable receiver will hear the resultant harmony of the chorus of as many voices as there are transmitters 8 with the accompaniment produced in front of the horn 16 and the impression produced
90 upon the listener will be the same as that produced by a chorus and orchestra performing at one single point.

Now, in the particular instance so far described it is assumed that there is being produced in front of the horn 16 some form of 95
instrumental music and that a vocalist is performing in front of a transmitter 8. The resultant sound is transmitted over the conductors 6—7 to the uppermost switch 1. Let it be supposed that this switch is in place 100
in contact with its terminals 2—3. Now, let it also be supposed that the third switch, counting downward in Fig. 1, is moved to make contact with its terminals 2—3. The
105 pivot points of this switch form the terminals of main line conductors 22—23 which are assumed to lead to any distant point or points and may be branched all over a city and may lead from one city to another; in
110 fact, these conductors may lead to as great a distance as it is possible to transmit sound. Now, the subscribers having receivers of proper type, as will hereinafter be described, branched off from these main line conductors 22—23, will be enabled to listen to the 115
sounds being produced by the central office and also entertained or instructed by what is being transmitted over the main line conductors 22—23, according to the character of the transmitted sounds. Now, let it be 120
further supposed that there are subscribers local to the central office where it will be more economical to provide another set of mains instead of attempting to reach these subscribers by the mains 22—23. Such mains 125
are indicated at 24—25 and include between their terminals the arms of one of the switches 1 which is shown in Fig. 1 as the second in order, reading downward, and branched off from the mains 24—25 are 130

branch circuits 26—27 and 28—29 and as many more as may be desired. The branch circuits each include, close to the mains 24—25, a junction box 30. This box contains two condensers 31, one in each branch conductor 26—27, and also a lightning arrester 32 of any suitable type, having a ground connection 33.

In the branch circuit 26—27 is included an ordinary head listening set 34 at the end of a flexible conductor 35, so that the subscriber may place the receiving set 34 upon his head and locate himself in any part of the room he occupies that he may please, or he may even take his ease in a recumbent position while receiving the sounds coming over the transmission line. Now, in order that the subscriber may regulate the volume of sound received to suit his taste, there is included in the circuit 26—27, within easy reach, an adjustable rheostat 36, and this rheostat may also include the cut-out switch, or a separate cut-out switch may be provided, as desired.

In the circuit 28—29 is shown a different type of subscriber's receiver, whereby the received sound instead of being individualized to the single subscriber, as when the head set is used, may be transmitted to any part of a room or auditorium. The form of receiver included in the branch circuit 28—29 is best shown in Figs. 2 and 3. This receiver consists of a magneto telephone 37, which may be of the ordinary type but large and powerful, and in place of the usual cap there may be provided a casing 38 including two chambers 39 and 40. Within the chamber 39 is contained the telephone diaphragm 41, having at its center a stem 42. Within the chamber 40, which is considerably larger than the chamber 39, there is secured another diaphragm 43, larger than the diaphragm 42, and between the two chambers there is a support or post or connection 44. This support 44 carries an arm 45 at its pivotal point, the said arm constituting a lever of the first order. The shorter arm of the lever 45 is connected to a stem 42 and the longer end of the lever 45 is connected to a stem 46 fast on the diaphragm 43 at its center. The diaphragm 43 is held to the casing on the opposite side thereof to the diaphragm 41 by means of a hollow cap 47 from the center of which projects an amplifying horn 48, either in one piece with the cap 47 or appropriately secured thereto. The receiver as a whole is supported by elastic hangers 49 from a fixed point 50 which may, if desired, be the ceiling of the room in which the amplifying receiver is located. Screw caps 51 and 52 give access to the chambers 39 and 40, respectively, and an elastic clamping ring 53 may be interposed between the diaphragm 43 and the cap 47. Now, it will be seen that vibrations transmitted by the electrical impulses to the dia-

phragm 41 will be enlarged by the lever 45 and the diaphragm 43 will have a greater amplitude of movement than the diaphragm 41. The air waves produced by the diaphragm 43 will be amplified by the horn 45, and, consequently, the sounds will be distinctly audible through the room in which the receiver is placed and to all parts of the room. By this means a number of people may receive instruction or pleasure by listening to the sounds emitted by the horn or amplifier 48.

The rheostat 36 included in the subscribers' branch line where a head set is used, is of the self-induction type; that is, the coils of the rheostat are reactance coils suitable for cutting down the alternating electric waves corresponding to the sound vibrations. Since the transmission of electrical waves varies on the line with the variations of climatic conditions, and also since the transmitted waves must be suited to the loudest reproduction desired, the received sounds will be obtrusively loud for subscribers using the head set; consequently, they may easily cut down the intensity of the received sound by means of the rheostat until it suits their convenience.

The junction boxes 30 are made watertight and the condensers are made sufficiently large to correspond to the number of subscribers carried on the branch line, since, of course, more than one subscriber may be included in each branch line. The condensers prevent all interference from direct currents which may be thrown upon the line from the crossing of the same with light or power circuits, and the lightning arrester will take care of powerful alternating currents either coming from light or power circuits or from lightning discharges. Now, while I have shown the subscribers' circuits as being branched from the local mains 24—25, it will be understood that the long distance mains 22—23 will have as many branch circuits as may be necessary to supply the subscribers along the line, and when the mains 22—23 extend to an adjacent community or to a distant community they may lead into a local exchange where connections may be made to local subscribers and where an operator may be located to take care of the various instruments. The main central station, however, will be located at some predetermined point and the entertaining or instructive sounds will be telephonically transmitted from such central station to all the sub-stations and to all the subscribers.

In the drawing, Fig. 1, there are other switches 1 shown than those already referred to. For instance, the fourth switch 1 may be included in a circuit comprising mains 51—52 coming from a transmitter located in a theater or other such place of entertainment, while the fifth switch 1 may be included in the mains 53—54 coming from a

church, and the sixth switch and other such switches may be included in mains 55—56 and other circuits coming from the residences of local musicians, so that when it is desired to give a concert made up of numerous voices it is not necessary to assemble the musicians at the central station but they may individually transmit their parts to the central station where these parts will be united through the switch-board and transmitted to the main conductors 22—23 and so to the subscribers. At the central station there will be located a timepiece arranged to give audible indication of the hours, half-hours and quarter-hours, but the timepiece will be so located as not to obtrude the sound produced thereby upon the other sounds so as to in any way interfere with them but will simply be heard by the listening subscriber as though located somewhere in the background. By providing printed daily programs, which will be furnished to each subscriber, the latter will be enabled to make choice of the particular part of the program he desires to hear, and at certain intervals the daily news will be transmitted to the several subscribers, with an epitome of the news at certain stated intervals each morning and evening. In fact, there is almost no limit to the character of the sounds which may be transmitted to the several subscribers for their instruction or entertainment, or both.

By the proper manipulation of the switches 1 the various parts making up the day's program may be directly under the control of a single operator at the central station, and by properly timing the various performances, both those furnished by the central office in the matter of music, lectures, news, etc., or by connection with separately located musical performers, or with churches or theaters, all these parts may be made to follow each other without material interruption and without interference.

In order that the operator at the central station may take cognizance of what is transpiring on the line, this operator is provided with a head set 57 having terminals 58 at the end of a suitable flexible conductor 59, which terminals may be placed in contact with any of the switch contacts 2—3 or 4—5.

In Fig. 4 the magneto telephone 37 is shown on the same side of the casing 38 as the horn 48. This causes the two diaphragms to always move together in the same sense, and produces better results than when the diaphragms move in opposite directions, although the form shown in Fig. 2 gives good results.

I claim:—

1. A pleasurephone system comprising a central station, a main line of conductors leading therefrom, telephonic receivers connected in multiple-arc to said main line con-

ductors at outlying stations, telephonic transmitters exterior to said central station and at said central station, and means at the central station for connecting the transmitters in multiple-arc to the main line conductors for coactive effect of said transmitters upon all the receivers.

2. A pleasurephone system comprising a central station switch-board including double-throw, two-pole switches, sets of contacts therefor with the like contacts connected up in series, circuits leading to said switch-board and each including a microphonic transmitter and one of the aforesaid switches, other circuits leading to distant points and each including one of the aforesaid switches, and telephonic receivers included in multiple-arc branches of said circuits leading to distant points.

3. A pleasurephone system comprising a central station switch-board including double-throw, two-pole switches, sets of contacts therefor with the like contacts of each set connected up in series, transmission circuits including microphonic transmitters and leading to the central station and there connected each to one of the aforesaid switches, a transmission circuit leading from said central station and connected to one of the aforesaid switches, and telephonic receivers connected up in multiple-arc to the out-going transmission circuit, whereby the transmission circuits leading to the central station may be connected up in multiple-arc to the transmission circuit leading from said central station.

4. A pleasurephone system comprising a central station, a single pair of main line conductors leading therefrom, a number of receivers at outlying stations connected in multiple-arc to said main line conductors, a number of telephone sets including transmitters and receivers at points exterior to the central station, and means at the central station for coupling the telephone sets to each other and to the main line conductors for coactive effect upon each other and upon the distant receivers.

5. A pleasurephone system comprising a central station, main line conductors leading therefrom, subscribers stations provided with receivers only, means at the subscribers stations for modifying the intensity of the received impulses, a transmitter at the central station, means connected therewith for modifying the intensity of the impulses sent to line by said transmitter, telephone sets including both receivers and transmitters exterior to the central station, lines of conductors leading from said telephone sets to the central station, and means at the central station for coupling up the telephone sets to the outgoing main line conductors in multiple-arc to the said conductors and for coup-

ling up the transmitter at the central station
to said main line conductors whereby the
combined effect of a predetermined number
of the several transmitters may be thrown
5 upon the main line and transmitted to the
subscribers stations for coactive effect on the
transmitters thereat.

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

CHARLES A. WARDNER.

Witnesses:

M. W. WRIGHT,
A. M. SHEALS.