

K. M. TURNER.
TELEPHONIC SYSTEM FOR AUDITORIUMS.
APPLICATION FILED JUNE 1, 1908.

941,114.

Patented Nov. 23, 1909.

Fig. 1.

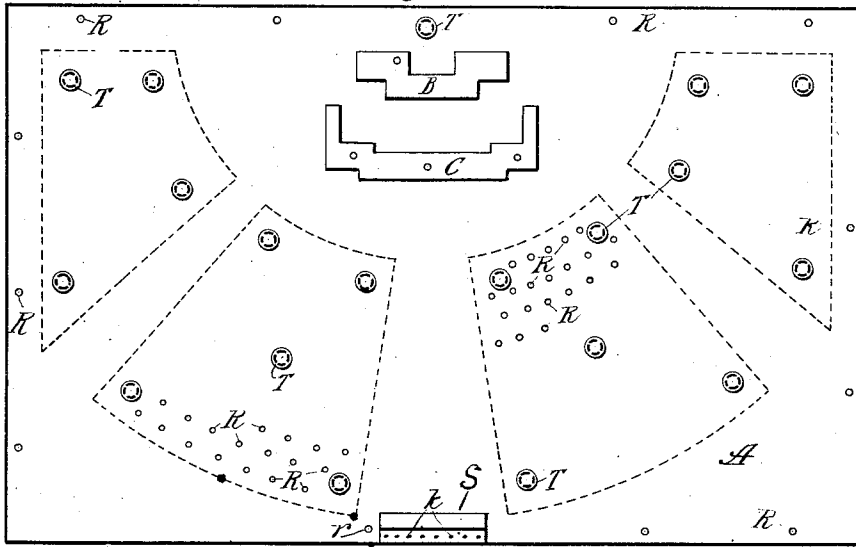
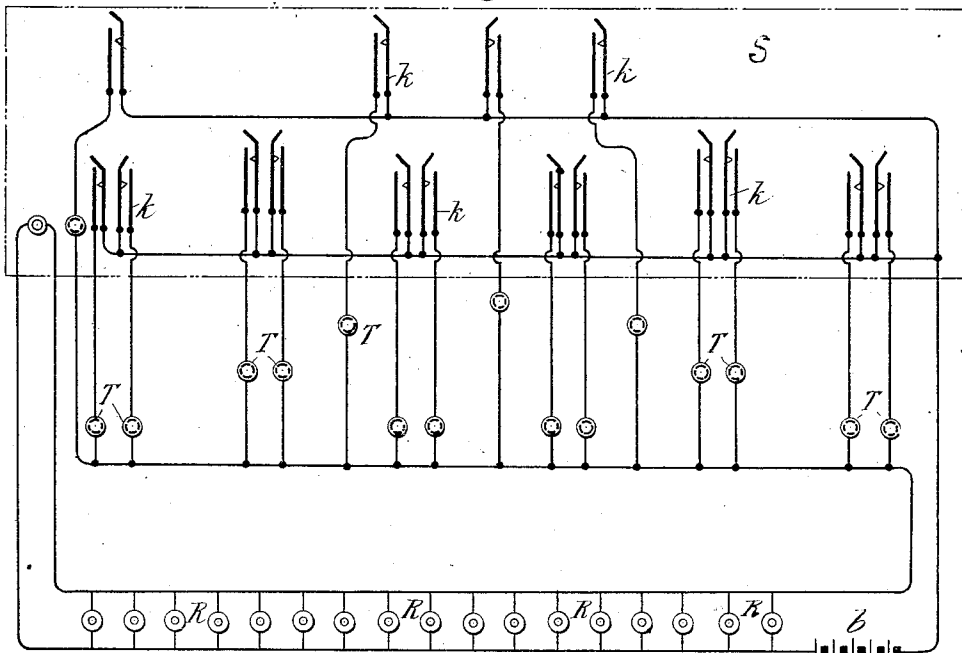


Fig. 2.



Witnesses:
Paulo. Ober
Waldo M. Chapin

Inventor
Kelly M. Turner.
By his Attorneys
Rosenbaum & Stockbridge

UNITED STATES PATENT OFFICE.

KELLEY MONROE TURNER, OF NEW YORK, N. Y.

TELEPHONIC SYSTEM FOR AUDITORIUMS.

941,114.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed June 1, 1908. Serial No. 435,878.

To all whom it may concern:

Be it known that I, KELLEY M. TURNER, a citizen of the United States, residing at New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Telephonic Systems for Auditoriums, of which the following is a full, clear, and exact description.

This invention is a telephonic system intended for use in large halls or areas, for transmitting the speech of any person in the assembly who may be speaking, to any indefinite number of persons simultaneously who may be located in the same hall or area or elsewhere.

It is well known that in conventions and other large assemblies difficulty is often experienced in hearing the remarks of a speaker on account of distance or disturbing noises which may occur at the same time. This invention is intended to make it possible for those persons who listen to hear with the greatest ease what is said by the speakers, regardless of the point or points at which they may be speaking, and likewise regardless of disturbing noises that may occur in the neighborhood of the listeners. The instruments used are also extremely sensitive so that persons more or less deaf are able to hear when ordinarily they could not. To accomplish this, my invention contemplates a telephonic system comprising transmitters of a sensitive character which are located at selected, fixed points throughout the hall or area to be covered; a plurality of receivers also distributed throughout the hall or area and any other places more or less remote therefrom, but convenient for those who may wish to listen, and a switching apparatus in charge of an operator so located that he has a view of the entire assembly, said switching apparatus being capable of manipulation by the operator so as to connect and disconnect at will any one or more of the transmitters with all of the receivers. Thus the operator is able, by watching those who rise to speak and their movements while speaking, to cut into circuit with all of the receivers the particular transmitter or transmitters which will most effectively transmit and reproduce the remarks of the speaker. To facilitate the manipulation by the operator, my invention also includes a test receiver which is always in circuit with the other receivers and by

which the result of the operator's manipulation of the switching apparatus is at once made known to himself, which enables him to operate the system at its highest efficiency.

My improved telephone system is illustrated in the accompanying drawing, wherein—

Figure 1 is a plan of an assembly hall or other area where persons assemble for the purpose of debate or the interchange of ideas by means of speech, equipped with the apparatus comprised in my improved telephone system, and Fig. 2 is a diagram of the circuits comprised in the improved system.

The hall or area A is supposed to be occupied by a large number of persons who ordinarily would occupy chairs or stalls arranged in groups, as indicated by the dotted lines, and separated by aisles. There may also be accommodations for a presiding officer at B and secretaries or reporters at C. Distributed throughout such an area or hall are a suitable number of sensitive telephonic transmitters T. The type of instrument is preferably that known as the "Acousticon" which is capable of transmitting sound emanating at a considerable distance from the instrument itself. These transmitters are fixed at their various locations by fastening them to the desks, chairs, or other specially-supplied supports, and they are arranged with their fronts directed with respect to one another so as to properly command the areas intervening between them. These instruments being so sensitive, will oftentimes transmit sounds coming from a comparatively great distance better than they will transmit sounds that emanate from a point immediately in front of or very near them. For this reason the field to which each instrument will respond is comparatively large and the instruments may be located some distance from each other, but always so that there will be no location in the hall or area which does not come within the range of at least one transmitter. The ranges or areas of the various transmitters also preferably overlap to a certain extent, so that two or more transmitters can be used simultaneously to effect a uniform degree of transmission.

R indicates telephonic receivers which for convenience should be located at each chair or stall and at each point in the hall, area,

or other localities where a person would be likely to desire to listen to the proceedings. S is a switch-board located at some point in or near the hall or area where the operator in charge of it will have a view of the entire space and, for his particular use, there is provided a test receiver *r*. All of the telephone receivers R and *r* are connected in the same circuit so that any one or all of them can be used at the same time and they will all receive the remarks of the same speaker. The switch-board is equipped with keys *k* by which the operator can connect with this single receiver circuit any one or more of the transmitters T, and he can likewise disconnect any of them at pleasure. The specific feature of the apparatus for accomplishing this is not important, but in Fig. 2 is shown a general diagram of the circuits wherein the reference letters that have been used heretofore are applied to the same parts, so that further description is not necessary, it being understood that the battery *b* is common to all of the instrument and that the keys are closed by simply pressing two springs together.

The operation is as follows: The operator at the switch-board keeps the assembly under observation constantly and, when he sees a speaker rise, he immediately manipulates the key-board in such a way as to throw into circuit with all of the receivers, one or more transmitters T in the immediate neighborhood of the speaker. At the same time he listens with his test receiver *r*, and, if he finds he does not hear distinctly, he may cut out one or more of the transmitters in use and substitute others until finally he obtains satisfactory reproduction at his receiver *r*. Every other receiver in the system, provided it is in good order, will reproduce the words of the speaker with the same distinctness as the test receiver, so that any person in the assembly who is located so far away from the speaker as not to hear him distinctly, or who may be disturbed by noises in his own immediate neighborhood, may

use the receiver at his command to hear the remarks of the speaker. These receiving instruments, if desired, may be equipped with hand or automatic switches of well known character for controlling their circuit when they are put into and out of use. It will be seen that with this visual supervision on the part of the switch-board operator, he is enabled to maintain the efficiency of the transmission, notwithstanding the fact that a speaker may move from place to place while speaking, and from the fact that the range of each transmitter overlaps that of its neighbor's, it would be extremely difficult for any speaker to so change his location that his remarks could not be caught by at least one of the instruments.

What I claim is:

1. A telephone system comprising a plurality of transmitters distributed at fixed points with reference to each other throughout a given area, a plurality of receivers connected in a single circuit, and a switching station located in a position which commands a view of the entire area, said switching station provided with manually operated means for connecting any one or more of said transmitters with the circuit containing the receivers, substantially as described.

2. A telephone system comprising a plurality of transmitters distributed at fixed points with reference to each other throughout a given area, a plurality of receivers distributed throughout said area and connected in a single circuit, and a switching station located in a position which commands a view of the entire area, said switching station provided with manually operated means for connecting any one or more of said transmitters with the circuit containing the receivers, substantially as described.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

KELLEY MONROE TURNER.

Witnesses:

H. E. DANTO,
D. GARBER.