

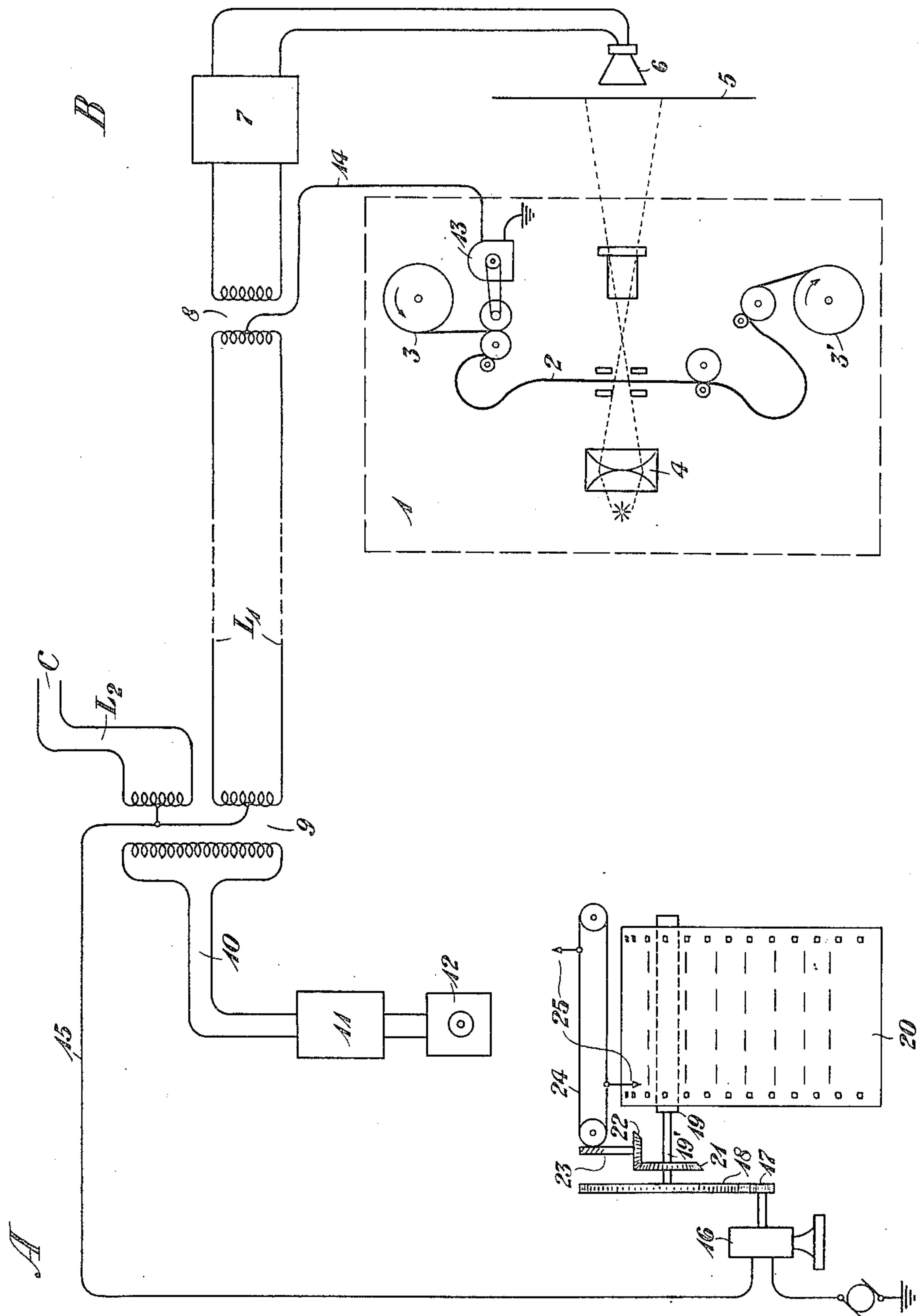
July 24, 1923.

1,462,525

G. K. THOMPSON

ARRANGEMENT FOR PRODUCING COMPLEMENTARY VISUAL AND AUDIBLE EXHIBITIONS

Filed April 11, 1922



INVENTOR.

G. K. Thompson
BY Ralph W. Wolf.
ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE K. THOMPSON, OF MAPLEWOOD, NEW JERSEY, ASSIGNOR TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION OF NEW YORK.

ARRANGEMENT FOR PRODUCING COMPLEMENTARY VISUAL AND AUDIBLE EXHIBITIONS.

Application filed April 11, 1922. Serial No. 551,743.

To all whom it may concern:

Be it known that I, GEORGE K. THOMPSON, residing at Maplewood, in the county of Essex and State of New Jersey, have invented certain Improvements in Arrangements for Producing Complementary Visual and Audible Exhibitions, of which the following is a specification.

This invention relates to arrangements for producing at one or more branch stations visual and audible exhibitions complementary to each other and for controlling said exhibitions from a master station.

With the arrangements of the invention a visual exhibition, such as a moving picture display, may be given at one or more branch stations and talk or music complementary to and in synchronism with said picture display may be transmitted to said branch station, or stations, from a central or master station. Such an arrangement would permit a speaker to deliver an address to an audience at one or more distant points and at the same time a moving picture of the speakers depicting the actual delivery of the address might be given complementary to said address. It is a feature of the invention that the control of all of the performances resides in the master station as will be pointed out more fully in the detailed description hereinafter given.

The invention may be more fully understood from the following description together with the accompanying drawing in the figure of which is illustrated a preferred embodiment of the invention.

In the drawing there is illustrated a line L_1 inter-connecting a master station A with a branch station B. Other lines, such as line L_2 , leading to another branch station C, might also be provided at station A. The apparatus for producing the complementary visual and audible exhibitions at the branch stations will be the same and only that at station B will be described. At station B is shown a picture projecting machine 1 including the film 2 upon the reels 3 and 3', a lens 4, and a motor 13 for driving the apparatus. The picture would be projected upon a screen 5. Located at a suitable place, such as behind the screen, would be one or more loud speaking receivers, such as 6. The loud speaker 6 is connected to an ampli-

fier 7, shown schematically, which may be of any desired type such as the well known vacuum tube type. The input of amplifier 7 is coupled through transformer 8 to the line L_1 . Line L_1 is connected at station A through transformer 9 to a circuit 10 which includes an amplifier 11 and a transmitter 12. At station A there is provided a synchronizing indicator comprising a printed sheet 20 having thereon the speech or music to be transmitted. The sheet 20 has perforations on each side of it which engage with sprocket wheels mounted on a drum 19. The drum 19 is driven by shaft 19' through the gears 18 and 17 by the motor 16. Associated with the sheet 20 is a pointer 25 which travels laterally from left to right just above the printed line. This travelling pointer points to each word of each succeeding line as the printed sheet 20 passes over the drum 19. The driving mechanism 24 for the pointer 25 is geared directly through gears 21, 22 and 23 to the driving mechanism for the perforated sheet 20 so that the relative speeds of the latter and the pointer may be constant. Suitable cam mechanism (not shown) may be provided on shaft 19' and drum 19 to cause the drum to revolve in an intermittent manner so that the sheet may be moved up a space each time the pointer reaches the end of a line. The motors 16 and 13 are operated in synchronism with each other in any well known manner, the circuits 15, 14 and line L_1 being provided for this purpose. The control circuit including circuits 14 and 15 may be composited with the telephone line L_1 , as shown, or regulation may be accomplished over a separate circuit. The motor 16 at the master station A controls the starting and speed of the motors, such as 13, at all of the branch stations.

The operation of the system is as follows: The speaker is first rehearsed as to the speed of his delivery and as to the ease with which he follows the movement of the pointer. When the normal speed of the speaker's delivery is determined the synchronizing indicator device consisting of the sheet and pointer and motor 16 is set for that speed. A moving picture is then taken of the speaker standing in front of the transmitter 12 and while delivering his speech from the

sheet 20 as the pointer 25 indicates. It is understood, of course, that these latter elements will not be included in the film. The speed of the motion picture camera at this instant is controlled by the motor 16, so that the negative obtained will be in synchronism with the speed of the speaker's delivery, and the various positions of the pointer. A positive film is then made and taken to the branch station B and placed in the picture projecting machine and adjusted to start in synchronism with the printed sheet 20 at the master station, that is, when the pointer 25 at station A points, let us say, to the first word of the salutation, "Ladies and gentlemen," the picture before the lens at station B will disclose the speaker in the act of speaking the first word of the salutation. If, now, both mechanisms are started and maintained in synchronism by the motor 16 at the master station and the speaker speaks the words indicated by the pointer 25, a talking moving picture will be produced at branch station B. Speed varying adjustments, if required, may be made at the branch station to take care of any lag in the line or on the part of the speaker. The effectiveness of the system will depend primarily upon the care with which the speaker follows the pointer 25. It is not necessary, however, for the speaker to be in absolute synchronism with the moving picture machine. The movement of the lips is made up of a series of pictures, 16 to the foot. It has been found that two or three pictures may be cut out of a talking moving picture film without seriously affecting the synchronism. This margin could be increased possibly by taking, say, 25 pictures per foot, instead of the usual 16. By means of the above described arrangements it would be possible to transmit speeches in such cases where the speaker would be willing to adapt himself to the synchronizing indicator, comprising the printed sheet and pointer and associated mechanism, and follow it with reasonable closeness.

It is pointed out that the arrangements of the invention might readily be utilized for the transmission of music and singing adapted to be complementary to a picture display, as the movement of the pointer 25 in such cases would become a true beat indicator to the musician. The proposed arrangement would lend itself particularly to the transmission of music from large orchestras under the control of a leader who could accurately time and control the performance from the synchronizing indicator mechanism. The music produced by soloists with accompanying chorus could also be transmitted effectively. In these latter cases quite a latitude could be allowed in the matter of synchronism as compared with the near view of a speaker and his moving lips.

The synchronizing indicator mechanism would be adjusted in all cases to indicate the speed of delivery to the transmitter of the audible exhibition.

While the invention has been disclosed in certain specific arrangements which are deemed desirable, it is understood that it is capable of embodiment in many and widely varied forms without departing from the spirit of the invention as defined by the appended claims.

What is claimed is:

1. An arrangement for simultaneously producing visual and audible exhibitions comprising a plurality of branch stations having telephonic apparatus and motion picture apparatus thereat, and a master station including means for regulating the operation of the moving picture apparatus at said branch stations, transmitting means cooperating with the telephonic apparatus at said branch stations, and means controlled by said regulating means for directing the operation of said transmitting means.
2. A system for simultaneously producing visual and audible exhibitions at a station, comprising telephonic and motion picture apparatus at said station, and a second station including means for regulating the operation of the moving picture apparatus at said first station, transmitting means cooperating with the telephonic apparatus at said first station, and means controlled by said regulating means for directing the operation of said transmitting means.
3. A system for simultaneously producing visual and audible exhibitions at a station, comprising telephonic and motion picture apparatus at said station, and a second station including means for regulating the operation of the moving picture apparatus at said first station, transmitting means cooperating with the telephonic apparatus at said first station, and means controlled by said regulating means for giving a visual indication of the manner in which said transmitting means should be operated, so that said telephonic and motion picture apparatus at said first station will operate in synchronism.
4. A system for simultaneously producing visual and audible exhibitions at a station, comprising telephonic and motion picture apparatus at said station, and a second station including means for regulating the operation of the moving picture apparatus at said first station, transmitting means cooperating with the telephonic apparatus at said first station, a message sheet with a pointer cooperating with the characters thereon, and means controlled by said regulating means for controlling said pointer and said message sheet whereby a visual indication may be given of the manner in which said transmitting means should be

operated so that said telephonic and motion picture apparatus at said first station will operate in synchronism.

5 5. A system for simultaneously producing visual and audible exhibitions at a station, comprising telephonic and motion picture apparatus at said station, and a second station including means for regulating the operation of the moving picture apparatus at
10 said first station, transmitting means coop-

erating with the telephonic apparatus at said first station, and a mechanism at said second station synchronized with the motion picture at said first station for giving a visual indication of the operation of said
15 picture.

In testimony whereof, I have signed my name to this specification this 10th day of April 1922.

GEORGE K. THOMPSON. 11