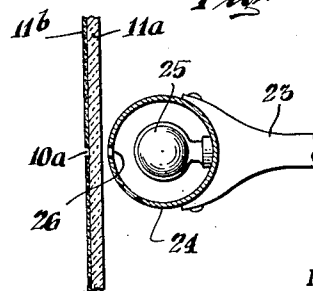


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PROGRAM SPOTTER MECHANISM AND
METHOD OF UTILIZING SAMEFrank N. Stanton, New York, N. Y., assignor to
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The present invention is concerned with mechanism and instrumentalities designated as a program spotter, and with methods of analyzing programs such as radio and television broadcasts, motion pictures, and the like, which may be employed in connection therewith. In accordance with the principles involved, there is provided a continuous visual indication of the reaction of an audience to a particular program presented in timed relation therewith. It enables one critically interested readily to observe and determine the degree of qualitative or quantitative response of an audience to the various events and sequences of the program.

As a specific application of the principles of the invention an original program or a recording thereof is rendered before an audience and concurrently therewith a record is made of the degree of like or dislike of the audience to the successive events of the program and a curve derived or subsequently made up in which, for example, the abscissae represent time, that is, progression of the program, and the ordinates represent the audience reaction. The curve may comprise advantageously a transparent narrow band or line in an opaque support. A narrow vertical source of light is then made to pass along the back of the support, with the result that there appears to a viewer in front of the support merely a spot of light moving along the transparent band. The recorded program would in the usual case comprise a sound record. When it is desired to analyze such a program for audience reaction the two records are presented simultaneously in timed relation, that is, the sound record is played and the light caused to move along the graph in synchronism therewith. The viewer accordingly is able to observe the audience reaction to particular events or portions of the program and to analyze it in any degree of detail desired.

The advantages and uses of the mechanism and methods are many. A particularly advantageous and representative application of the invention is in connection with radio scripts. The means and methods disclosed enable a precise determination of what parts or events in a program appeal most to the audience and, conversely, what matters have less appeal or are disliked, and the degree of likes or dislikes. The data thus obtained may be very useful in determining upon, arranging, or revising programs.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the several steps and the relation of one or more of such steps with respect to each of the others, and the apparatus embodying features of construction, combinations of elements and arrangement of parts which are adapted to effect such steps, all as exemplified in the following detailed disclosure, and the scope of which invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a general view illustrating the apparatus and system as a whole with parts of the apparatus broken away.

Fig. 2 is a front elevational view showing particularly a representative graph embodying element.

Fig. 3 is an end view of Fig. 1; and

Fig. 4 is a detail plan view of the light source, taken on the line 4—4 of Fig. 3.

In the drawing there is shown one form of mechanism adapted to illustrate the principles of the invention and in connection with which the various steps and manipulations of the method may be explained more clearly.

It may be assumed in accordance with the specific illustration that a particular program such as a radio script has been delivered before an audience and the reaction of the audience thereto noted and recorded and that the curve or graph 10 of such reaction appears on the supporting sheet 11. The details of the various ways in which the curve 10 may be obtained and embodied in the element 11 need not be described. Suffice it to state that in the curve as pictured the horizontal distances, i. e., the abscissae represent the element of time which in fact is the progression of the program, and the vertical positions, that is, the ordinates, represent the degree of like or dislike registered by the audience. The audience would normally include a number of persons and, accordingly, the degree of like or dislike graphically depicted would comprise at any point in the graph, a summation or average of the audience reaction at that particular moment or event in the program. The exact physical characteristics of the graph and its support may of course vary, but as specifically depicted they comprise a relatively narrow band in an opaque support, the band being transparent or capable of transmitting light to a considerable degree from a source placed in

back of the supporting sheet. The sheet may comprise, for example, a material which is originally opaque throughout its extent, and the band made by cutting out and removing completely the material over the path of the curve. An arrangement of that character is shown in Figs. 1 and 2. As an alternative form, the light transmitting band may be produced merely by modifying or eliminating the opacity in that area by any suitable mechanical or chemical process appropriate to the character of support provided as illustrated in Fig. 4 where there is shown a transparent base 11a having a surface coating 11b of opaque material in which is formed the graph 10a. The curve preferably is associated with a base line such as indicated at 12 which may be considered neutral, the portions of the curve above such line denoting degrees of like and those below degrees of dislike.

A suitable device for utilizing the graph is shown in Fig. 1. In general this will comprise a frame or box for mounting a graph bearing element 11; a narrow vertically elongated source of light arranged in back of the element; means for producing relative translatable movement between the light source and the graph bearing element at a predetermined rate; and means for reproducing the program simultaneously and in proper time relation with the translatable movement. It will be apparent that various mechanical and electrical elements may be suitably associated and coordinated to effect the purposes. In the specific illustrative mechanism depicted the light source and the power means for producing the relative movement are made to move horizontally and the graph bearing element remains stationary.

Referring particularly to Figs. 1 and 3, there is shown a suitable main frame or housing 14 in which the graph carrying sheets may be readily mounted and removed for substitution of others. An electric motor 15 and associated elements are supported on a V-guide 16 and a rack bar 17 fixed in the main housing 14. The motor is adapted to ride along these supports and is provided with suitable self-propelling means for this purpose. This means may comprise, as shown, a shaft 18 extending from an auxiliary housing 19 of the motor, the shaft having fixed thereon a spur gear 20 which meshes with the rack 17. The inner end of shaft 18 has a geared connection with the shaft of the motor. The details of the gearing are not shown since any suitable arrangement for this purpose may be readily designed. In general the drive from the motor 15 to the gear 20 includes a speed reduction and comprises a means as a whole whereby the motor pulls itself along the guideways at a relatively slow speed. The support on guide 16 comprises a shoe 21 forming part of a bracket secured to the motor 15. This shoe may be made sufficiently long in the direction of the guide 16 or any other suitable means provided to insure maintenance of the motor in upright position.

Secured to the opposite side of the motor is a bracket 23 which carries at its outer and upper end a shell 24 within which is mounted a suitable light source, such as an elongated electric light bulb 25. The side of the shell 24 toward the curve-containing element 11 is provided with a vertical slit 26 adapted to emit a narrow beam of light. If desired the slit may be provided with a suitable lens or like means for assisting in collecting and directing the light rays. The opaque sheet 11 intercepts the rays of the beam except

for a small portion at the transparent band 10. Accordingly, as viewed from the front of the device, there will be visible to the observer a spot of light 27 which as the motor is operated appears to move in accordance with the contours of the band forming the graph 10.

Associated with the mechanism thus far described is a means for operating a device for reproducing the programs corresponding to the particular graphs. Such a device is shown diagrammatically at 28. The program, and correspondingly the reproducing device, may, of course, be of any desired character, such as a motion picture projector or sound machine, or both, but the arrangement and principles of the invention have exceptional advantages in connection with the reproduction of sound programs such as radio broadcasts. In such latter arrangement the device 28 accordingly would comprise merely a record player. The record player must, of course, be operated in synchronism with the light beam translator. Appropriate means to this end may be designed in various ways. In the present illustration the proper relation is obtained by providing the translating means and the program reproducer each with a synchronous type motor and connecting both to the same source of alternating current 30. The motor for the program reproducer is shown diagrammatically at 31 and its electric wire connections at 32. The connections 33 to the translator motor may conveniently include branch wires 34 leading to the electric light bulb 25. Appropriate switches may be provided as exemplified at 35 and 36.

In the use of the device the proper initial time relation between the program reproducer and the position of the light beam with respect to the particular graph are established, and the two motors set in operation. The observer then watches the position of the light spot 27 while listening to the program. The vertical position of the spot informs him as to the degree of like or dislike with which the successive events or sequences are received. He may of course note whatever data he desires. The apparatus has the advantage that the program may be repeated in whole or in part as many times as desired. A thorough analysis may be made of the reception given the various parts of the program and the information obtained utilized for many purposes and in a great variety of ways, dependent upon the character of the program and the circumstances in general.

Since certain changes in carrying out the above method and in the constructions set forth, which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. A program spotter comprising a sheet of generally opaque material embodying a graph in the form of a narrow band of irregular contour capable of transmitting light through the area of said sheet comprising said band, said graph being arranged to represent progressively the summation of audience reaction to successive events of a particular program, a source of light arranged in back of said sheet providing a beam of light adapted to shine through said band, means for reproducing a recording of the program of said graph, and means for producing relative trans-

latory movement between said beam of light and said sheet and its graph connected to operate in proper timed relation with said reproducing means and in a direction substantially parallel to one of the axes of said graph whereby a spot of light is projected through said sheet moving back and forth transversely to the general direction of translatory movement in accordance with the contours of said curve.

2. A method of analyzing programs comprising rendering a program to an audience, noting the reactions of said audience to the successive events of said program, forming a graph representing

progressively in timed relation to the program such reactions, and presenting a visual indicator in progressive positions corresponding to said graph while rendering concurrently and in proper timed relation therewith a recording of said program.

3. A method of analyzing programs comprising rendering a program, and displaying simultaneously and in timed relation therewith a light spot variable progressively as to position in accordance with the summation of audience reaction to successive events of said program.

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