Sept. 20, 1927. 1,642,733

C. F. JENKINS

TWIN LIGHT CELL TRANSMITTER

Filed March 21, 1925

Fig 1

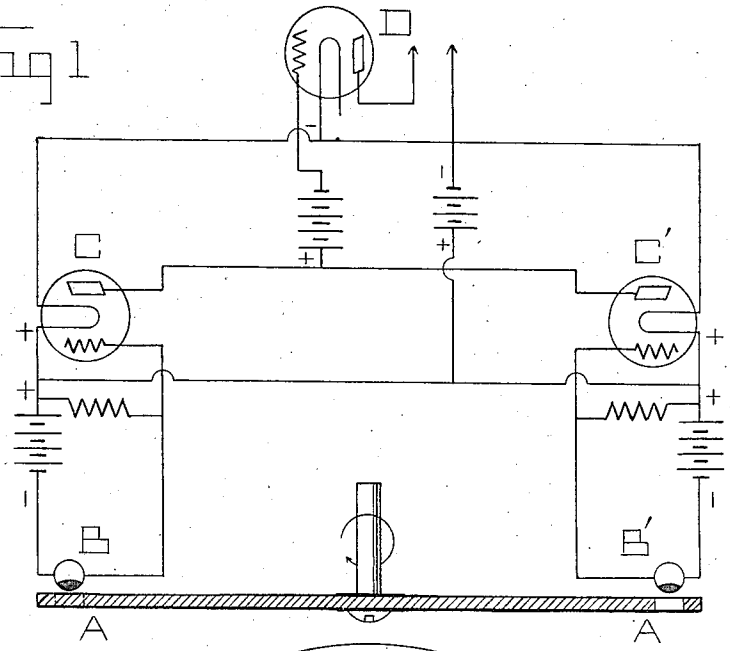
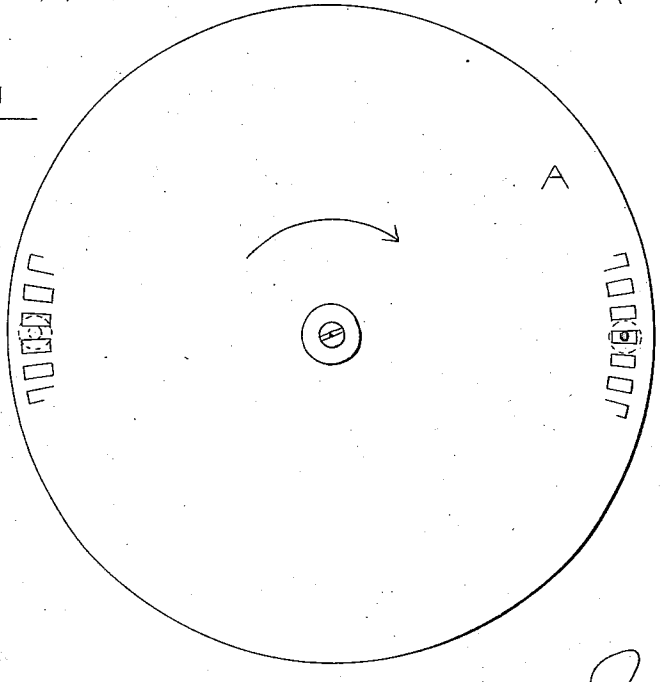


Fig 2



Inventor

C. Francis Jenkins

Florence M. Anthony,

Patented Sept. 20, 1927. 1,642,733

UNITED STATES PATENT OFFICE.

CHARLES FRANCIS JENKINS, OF WASHINGTON, DISTRICT OF COLUMBIA.

TWIN-LIGHT-CELL TRANSMITTER.

Application filed March 21, 1925. Serial No. 17,210.

This invention relates to apparatus for the broadcasting of motion pictures and the like, and has for its main object means for overcoming the lag in light-sensitive cells.

In the analysis of an active scene or picture for visual radio broadcasting the scene or picture is, in imagination, though not actually, divided into little squares of equal number each way in a square picture. For example, in a ten inch square picture with an imaginary division of 50 lines per inch each way there would be 250,000 little squares. To make up a picture over this surface the squares would be divided again, the increased number of sub-divisions being a varying quantity as the moving scene or picture changed.

Obviously the light sensitive cell which analyzes this scene must respond to the light changes just described, and must recover its initial condition just as quickly. A cell which has a lag, that is, does not recover sensitivity as quickly as it initially acts, is no more useful than a sluggish-acting cell. And this has been one of the serious obstacles to a more rapid development of radio movies; for while a single cell will respond over a considerable range of frequencies, the lag in recovery of the cell makes the high-frequency change in current very minute, so small at higher frequencies that it is almost impossible to amplify it because it is over ridden by tube noises.

Several different types of light cells respond fast enough, but as no cell known to applicant is without serious lag, the following method and mechanism has been developed to avoid the results of lag.

With this and other objects in view the invention consists in the novel details of assembly of the various devices employed, hereinafter disclosed and particularly pointed out in the claims.

In the drawing, Fig. 1 is a schematic illustration of the invention, and Fig. 2 an elevation. In the figures A is a peripherally perforated disc, rotatable in front of the light-sensitive cells B and B′. C and C′ are three-element tubes of the usual type, both connected to a tube D, the first tube of an amplifier unit. From this amplifier the circuit goes to the transmitter set.

The operation of the device is as follows: Light impinges on the cells alternately, by reason of their staggered relation to the apertures in diametrically opposite positions in the disc A. Thus one cell, B′ for example, is activated by light falling thereon through an aperture in the disc, but is quickly thereafter cut off. But as the cell has a lag it does not instantly recover its original sensitivity, but requires a momentary rest.

It is to provide this rest period for the tube to recover that the present method and mechanism is employed. That is, two tubes are provided, and exposed alternately to provide a rest and recovery period for each while maintaining a constant activity of the amplifier by putting the output of each cell thereon successively.

It is obvious that if the recovery of each of the (two) cells employed is slower than 50% of the whole time, it would be possible to employ additional cells, and I do not, therefore, wish to limit myself to only two cells; nor to the particular circuit by which they are connected to the amplifier shown; nor is this amplifier hook-up the only one possible, or necessarily the best one.

What I claim, is—

1. In combination, a plurality of light-sensitive cells, means associated with each cell to produce current variations in accordance with variations in light falling on the cell, each of said means being connected in the input circuit of a three-electrode repeater, the output circuits of said repeaters being connected to the input circuit of a common amplifier, and means to energize said cells successively.

2. In combination, a pair of light-sensitive cells, means associated with each cell to produce current variations in accordance with variations in light falling on the cell, each of said means being connected in the input circuit of a three-electrode repeater, the output circuits of said repeaters being connected to the input circuit of a common amplifier, and means to energize said cells alternately from a common source of light.

3. In combination, a pair of light-sensitive cells, means associated with each cell to produce current variations in accordance with variations in light falling on the cell, each of said means being connected in the input circuit of a three-electrode repeater, the output circuits of said repeaters being connected to the input circuit of a common amplifier, and means to energize said cells alternately by light from different portions of a picture.

In testimony whereof I have affixed my signature.

CHARLES FRANCIS JENKINS.