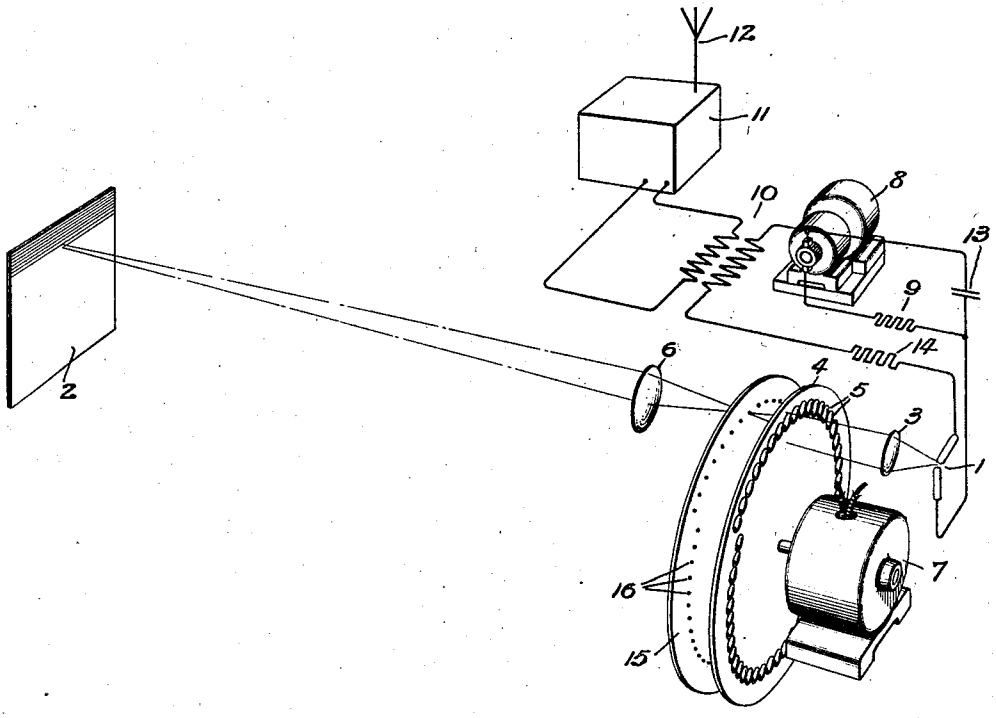
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PICTURE TRANSMISSION APPARATUS

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Inventor:
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PICTURE TRANSMISSION APPARATUS

Application filed May 17, 1930. Serial No. 453,367.

My invention relates to picture transmission apparatus and particularly to that part of the apparatus by which the received image is projected. The object of my invention is to provide improved receiving apparatus whereby the image produced thereby shall be either more brilliant or of larger size than heretofore has been obtainable and shall be more sharply defined.

My invention will be better understood from the following description taken in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

In the single figure of the drawing which illustrates one embodiment of my invention, I have shown the light source 1, the screen 2 upon which the image is projected, and the optical system therebetween comprising the collecting lens 3, the rotatable lens disk 4 having therein the spiral series of lenses 5 and the objective 6. The lens disk is shown mounted on the shaft of the motor 7 by means of which it is rotated in synchronism with a corresponding member at the sending station. Various well understood means may be employed for insuring synchronous rotation of the corresponding members at the sending and receiving stations.

The source of light 1 which I employ is an arc lamp of the flaming arc type, a form of such lamp being commonly termed a Beck arc lamp. As is well known, the light from a lamp of this type comes principally from the incandescent vapors of metallic salts or carbides in the arc and is far more intense than the light emitted by arc lamps of the common or non-flaming type. Inasmuch as the heat loss and hence the rate of cooling of the incandescent vapor is extremely rapid, the arc is susceptible to modulations up to frequencies as high as 20,000 or more cycles per second, which is sufficiently high for the satisfactory transmission of pictures.

The arc lamp 1 may be supplied with current from any suitable source. In the drawing, I have shown it connected by way of example with the D. C. output side of the motor generator 8 through the stabilizing resistance 9. In the connection I have shown the secondary of the modulating transformer 10 whose primary by a connection with the radio receiver 11, having the antenna 12, is adapted to receive signals transmitted by radio from the sending station. A by-passing condenser 13 is shown in shunt with the generator and the resistance 9 and a second resistance for limiting oscillations from the arc is shown at 14.

Inasmuch as the light emitted from the incandescent vapor of the flaming arc 1 is many times brighter than that emitted by the incandescent tips of the electrodes from which the arc springs, the light spot which is caused to scan the screen by the apparatus above described is sufficiently well defined to produce a satisfactory image where the requirements are not too exacting. Where a sharper definition is required, I provide means for excluding such light as comes from the lamp electrodes so that light spot on the screen is composed only of light emitted by the incandescent vapor of the arc which as has already been pointed out is capable of the desired high frequency modulation. As an example of one means which may be employed for thus excluding the undesirable light, I have shown the disk 15 having the spiral series of holes 16 therein which are the same in number and are arranged in correspondence with the lenses in the disk 4. The disk 15 is positioned in the plane of the focal points of the lenses 5 and is mounted to rotate with the lens disk, for example, by being secured to the motor haft beyond the lens disk. By this arrangement the light emanating from the incandescent ends of the electrodes is cut off by the disk 15 while the light from the highly luminous incandescent vapor of the arc passes freely through the holes in the disk and forms the light spot on the screen.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. Picture receiving apparatus comprising an arc lamp of the flaming arc type, means for modulating the current supplied to the lamp in accordance with the received signal, a screen, means adapted to be operated in synchronism with the sending apparatus for projecting on the screen a spot of light from the

arc of said lamp, and means for excluding from the screen light from the electrodes.

2. Picture receiving apparatus comprising an arc lamp of the flaming arc type, means for supplying to the lamp operating current modulated in accordance with the received signal, a screen, optical means including a member rotatable in synchronism with the sending apparatus for focusing light from the arc of said lamp in a spot in said screen, and means for limiting the light reaching the screen to that emanating from the arc.

3. Picture receiving apparatus comprising an arc lamp of the flaming arc type, means for supplying direct current to said lamp, means for modulating said direct current supply in accordance with signals received from a sending apparatus, a screen, a disk having a series of lenses arranged in a spiral therein and arranged successively to pass between the lamp and the screen when the disk is rotated, a motor for rotating the disk in synchronism with a sending apparatus, an objective, and a second disk rotatable with the first mentioned disk and having a series of holes therein corresponding with said lenses for excluding from the objective all light emanating from the electrodes of said lamp.

In witness whereof, I have hereto set my hand this 16th day of May, 1930.

IRVING LANGMUIR.