

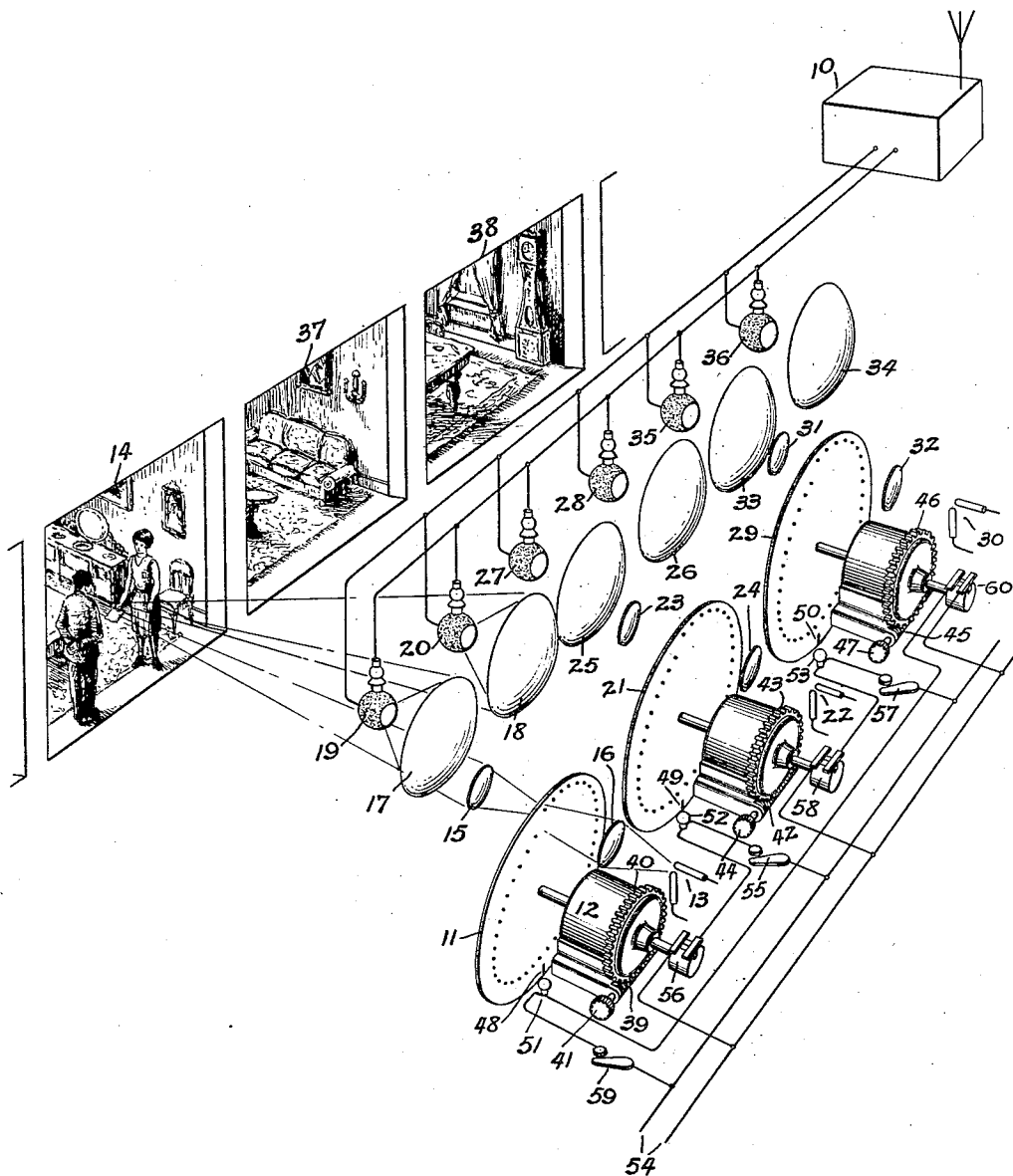
Feb. 10, 1931.

W. A. TOLSON

1,792,259

TRANSMISSION OF PICTURES

Filed July 16, 1929



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UNITED STATES PATENT OFFICE

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TRANSMISSION OF PICTURES

Application filed July 16, 1929. Serial No. 378,797.

My invention relates to the transmission of pictures and has for its principal object the provision of an improved apparatus and method of operation whereby scenes from different parts of a picture transmitting studio or the like may be readily picked up and transmitted.

In the operation of a picture transmitting studio it is desirable to use a plurality of devices arranged to pick up scenes from different parts of the studio. These devices may each include scanning means such as a spiral disc or the like. Where movable scanning members are utilized in the scanning of the scenes or pictures it is necessary not only that they be moved at the same speed but that they be maintained in a certain definite relation with respect to one another. Thus, if each scanning device includes a rotatable spiral disc, it is essential that the discs be rotated in synchronism with one another, and that they be maintained at the same relative angular position with respect to the arrangement of the scanning holes. This is made necessary by the fact that the scenes or pictures from different parts of the studio are transmitted by means of different pick-up devices and the proper relation must be maintained between the positions of their movable members if the different scenes transmitted are to be properly framed at the receiving station.

In accordance with my invention these results are secured by an improved arrangement including means for adjusting the angular relation between the movable parts of the different pick-up devices and for indicating when all the movable parts are so arranged as to frame the different transmitted scenes similarly.

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

The drawing diagrammatically illustrates a picture transmitting studio apparatus wherein my invention has been embodied.

This apparatus includes a plurality of pick-up devices arranged to apply to a radio

transmitter 10, electrical impulses which are dependent upon the shading of scenes or pictures in the different parts of the picture transmitting studio. One of these pick-up devices includes a perforated disc 11 which is arranged to be driven by a motor 12 and to admit light from a source 13 to a picture indicated at 14. Suitable lenses 15 and 16 are provided for controlling the light applied to and projected through the disc 11. It will be readily understood by those skilled in the art that the light is caused by the spirally arranged perforations of the disc 11 to repeatedly scan the successive elemental areas of the picture. The light reflected from these successive elemental areas is received by a pair of concave mirrors 17 and 18 from which it is reflected into a pair of high sensitive cells 19 and 20 located at the face of these mirrors. These cells are connected to the input circuit of the radio transmitter 10 and operate in a well-known manner to modulate the output current of this transmitter in accordance with the shading of the different parts of the picture transmitted.

The apparatus also includes a pick-up device including a spiral disc 21, a light source 22, lenses 23 and 24, concave mirrors 25 and 26 and light cells 27 and 28, and a pick-up device including a spiral disc 29, a light source 30, lenses 31 and 32, concave mirrors 33 and 34, and light sensitive cells 35 and 36. As will be readily understood without detailed explanation, the first pick-up device is utilized to produce electrical impulses dependent on the shading of the different parts of the picture 14, the second pick-up device is utilized to produce electrical impulses dependent on the parts of a picture 37, and the third pick-up device is utilized to produce electrical impulses dependent on the shading of the different parts of the picture 38. While the three pick-up devices are illustrated, it will be apparent that any suitable number may be employed.

In order for the different transmitted pictures to be properly framed at the receiving station, it is essential not only that the perforated scanning discs 11, 21 and 29 be rotated at the same speed, but also that they

bear a certain definite angular relation to one another. The different discs are readily caused to operate in synchronism with one another by connecting their driving motors to the same source of electric power. The adjustment of the angular relation between the different discs is effected by means of a worm and gear interposed between the stator and base of the motor and arranged to be adjusted by means of a handwheel, the angular position of the disc 11 being adjusted by means of a worm 39, a gear 40 and a handwheel 41, the angular position of the disc 21 being adjusted by means of a worm 42, a gear 43 and a handwheel 44; and the angular relation of the disc 29 being adjusted by means of a worm 45, a gear 46 and a handwheel 47. The discs 11, 21 and 29 are provided respectively with indicating marks 48, 49 and 50 which are arranged to cooperate with a plurality of lamps 51, 52 and 53. Current is supplied from suitable supply means 54 to the lamp 52 through a switch 55 and a contact device 56 mounted on the shaft of the motor 12; to the lamp 53 through switch 57 and a contact device 58 mounted on the shaft of the motor which drives the disc 21; and to the lamp 51 through a switch 59 and a contact device 60 mounted on the shaft of motor which drives the disc 29.

Assuming that the discs 11, 21 and 29 are rotating with the same speed, they are caused to have the same angular relation by adjustment of the handwheels 41, 44 and 47. Thus in order to cause the disc 21 to have the same angular relation as the disc 11, the handwheel 44 is adjusted until the indicating mark 49 on the disc 21 is opposite the lamp 52 when the contact device 56 connects this lamp to the supply circuit 54. Likewise in order to cause the disc 29 to have the same angular relation as the disc 21, the hand-wheel 47 is adjusted so that the indicating mark 50 is opposite the lamp 53 when the circuit of this lamp is completed through the contact device 58. The angular relation of the disc 29 may be also checked with that of the disc 11 by closing the switch 59. If the adjustment is correct when this switch is closed, the indicating mark 48 on the disc 11 is opposite the light 51 when its circuit is closed through the contact device 60. It will of course be understood that the contact devices 56, 58 and 60 are provided with conductive bars which cause the lamps 52, 53 and 51 to be lighted for very short intervals of time.

It will be apparent that my invention has the advantage that scenes from different locations may be successively transmitted when the apparatus has once been adjusted. Thus with the apparatus as illustrated and described the picture 14 may be transmitted for one time interval and thereafter the pic-

tures 37 and 38 may be readily transmitted, all of these pictures being properly framed at the receiving apparatus due to the previous adjustment of the various pick-up devices. As is well known, this result is very desirable where plays and the like are transmitted either by radio or by means of conductors connected between the transmitting and receiving stations.

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

1. The combination of a plurality of devices at the same sending station each arranged to transmit a different picture, and means at that station for indicating when said pictures are similarly framed.

2. The combination of a plurality of devices at the same sending station each arranged to transmit a different picture, and means at that station for causing said pictures to be similarly framed.

3. The combination of a plurality of devices at the same sending station each arranged to transmit a different picture, means at that station for indicating when said pictures are similarly framed, and means for causing said pictures to be similarly framed.

4. A picture transmitting apparatus including a plurality of movable scanning members at the same sending station, means for moving said members, and means for establishing a predetermined relation between the positions of said members.

5. A picture transmitting apparatus including a plurality of movable scanning members at the same sending station, means for moving said members, means for establishing a predetermined relation between the positions of said members, and means for indicating when said relation is established.

6. A picture transmitting apparatus including a plurality of rotatable scanning members arranged at the same sending station and perforated along lines parallel with their rotational axes, and means for causing said members to assume the same angular positions with respect to their respective perforations.

7. A picture transmitting apparatus including a plurality of rotatable scanning members arranged at the same sending station and perforated along lines parallel with their rotational axes, means for causing said members to assume the same angular positions with respect to their respective perforations, and means for indicating when said members are in said angular positions.

8. A picture transmitting apparatus including a plurality of rotatable scanning members perforated along lines parallel with their rotational axes, means for causing said members to assume the same angular positions with respect to their respective perforations, and a lamp arranged to have its circuit controlled in accordance with the rota-

tional speed of one of said members for indicating the relative angular position of another of said members.

9. A picture transmitting apparatus including a radio transmitter, a plurality of pick-up devices each arranged to apply to said transmitter electrical impulses dependent on the shading of the successive elemental areas of a scene taken from a different location, means for indicating the relation between the framing of the different scenes, and means for causing said scenes to be similarly framed.

In witness whereof, I have hereunto set my hand this 15th day of July, 1929.

WILLIAM A. TOLSON.

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