Television and the Telephot

Coming Inventions No. 1.

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(*Conclusion*)

As we mentioned in the preceding installment of this article, all the telephot schemes which have appeared so far are more or less theoretical. Many of them have not even reached an experimental stage. It seems that while most ideas look more or less practical on paper, it is quite impossible to tell if any of them would actually work in practise. At any rate the various proposed schemes here illustrated form interesting reading for the serious-minded experimenter, who is working on this more or less intricate problem. Several of the schemes outlined show a reasonable way towards accomplishing the goal.

Figure 1 shows the telephot of Mr. Sidney Rothschild, of New York, on which patents have been issued. Briefly summarized, this invention consists in causing a light controlled composite background to vary the intensity of electrical currents flowing over a wire, and causing these currents to control the intensity of light at the receiving station, this light being caused by an appropriate mechanism to produce a moving luminous spot of varying intensity in such a manner as to reproduce a facsimile image disposed adjacent to the aforesaid background at the transmitting station. The outstanding features are indicated in the illustrations, and the more technical details have not been discust. These can be readily looked up in the patent specifications by anyone sufficiently interested.

At the sending station we have a subject A, whose picture is transmitted thru lens 1, the rays of which fall on the selenium cell 4, after passing thru a belt 3, which is rotated at a high speed. This belt has a number of longitudinal slots disposed crosswise, the belt travelling in the direction indicated by the arrow. A revolving cylinder 9 is provided with a series of slots, each being adapted to register with one of the sections 8 of a further selenium cell. In this manner Mr. Rothschild expects to cut up the various points of the picture and transmit the impulses over the line as shown. At the receiving end, we find a revolving wheel 6 and another rapidly revolving belt 5 which also has longitudinal slots as shown in detailed drawing *C*. By means of a light source shown at 11, which may be an incandescent lamp, the light rays pass thru the revolving wheel 6 and slotted belt 5. The light rays in this case being cut up exactly in the same manner as those of the transmitter. These light rays fall thru lens 2 and thence are projected on to the screen *B*. Thus the picture is supposed to be reproduced. As in all other telephots, this one of necessity requires a synchronous movement as it is important that the sender and the receiver work synchronously. This is one of the difficult points of the telephot, and as yet has not been realized in practise.

A clever telephot which was patented by Messrs. A. C. & L. S. Andersen is shown in Fig. 2. The sending apparatus comprises a dark chamber shown in dotted lines, in which is placed a lens 6′ which receives the rays issuing from the dark chamber. These rays after being refracted meet a small selenium cell 8, placed behind the prism 6″. Screen 1 represents an object (in reality farther removed from the dark chamber than the drawing indicates). The light rays coming from the screen 1 after refraction in the lens 6 which is in front of the dark chamber form upon the endless ribbon 3, a real image reversed and reduced by the screen 1. This ribbon is flat continuous and opaque except at certain perforated points, arranged according to a diagonal line as shown in the detail sketch *S*. The distance separating the holes 5 depend upon the size of the image in the dark chamber. The holes are spaced apart in such a manner that only one point can be located at each instant within the field of the image in the dark chamber. The ribbon 3 is displaced from above downwardly by means of an electric motor; it thus forms the end of the dark chamber; the luminous rays traversing the perforations of the ribbon fall upon the lens 6′. They are received by the selenium cell 8. Only one point comes at each instant within the field of the image as the illustration shows. When the ribbon has been displaced the whole of its length, each of the points of perforation has crost the part of the image which is presented to view; thus, the entire picture is transmitted point by point.

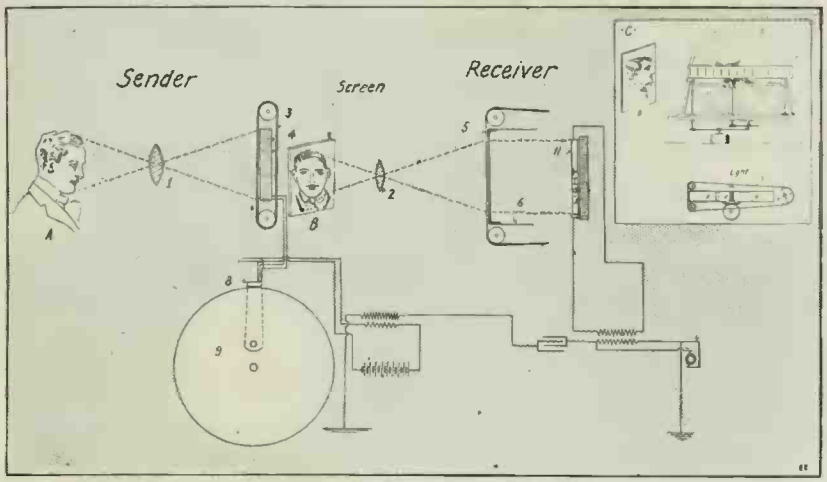

Fig. 1. This is the Rothschild Telephot Scheme Which Cuts Up the Light Impulses by Means of a Slotted Revolving Belt 3 at the Sender. Passing Rapidly Before the Selenium Cell 4 the Impulses Are Sent Over the Line and Influence a Source of Light 11 at the Receiver Where a Similar Revolving Belt Scheme Reconstructs a Picture as Shown at B.

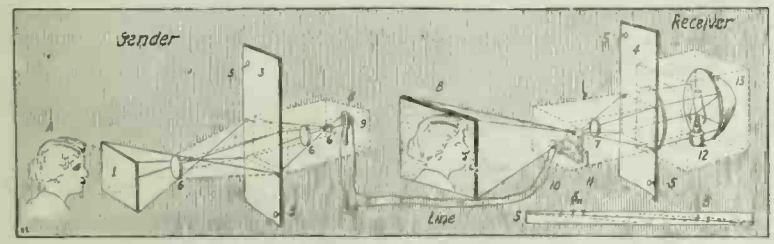

Fig. 2 Shows the A. C. & L. S. Andersen Telephot, Where Use Is Also Made of Revolving Belt 3, Having Perforations 5. This Belt at the Sender Rapidly Passes In Front of the Camera Influencing a Selenium Cell 9. At the Receiver a Sensitive Electro-Magnetic Arrangement, 10 and 11, Acting as a Shutter Cuts Off the Light Impulses: Thus Theoretically Reconstructing the Picture.

At the receiving end we find the sender practically reversed. Here we have another moving ribbon 4 with perforated holes 5. In the dark chamber 13 we have a source of illumination which may be a kerosene lamp, or an electric lamp or any other kind of a lamp 12. This lamp throws its rays thru lens 7. Here we have also the electro-magnet 10 which is connected with the selenium cell, and a battery at the sending station. By means of an ingenious shutter arrangement 11, the light rays coming from the lamp 12 are more or less influenced, due to the fact that the electro-magnet is more or less energized by the selenium cell 8 of the sender. In other words when at the sending station, the selenium cell was energized at its maximum, in this case the electro-magnet 10 at the receiving end would be energized at its maximum also, and therefore the shutter would let pass the maximum amount of light. All providing of course, that the ribbon 4 was working synchronously with the ribbon 3 at the sender. As the ribbon 4 revolves very rapidly and synchronously with the ribbon at the sender, the picture is thus reproduced point by point and is recomposed upon the screen shown at *B*. Messrs. Andersen have also incorporated into this invention an idea showing how the picture can be transmitted in its actual colors. This is a very ingenuous arrangement, but is outside of the scope of this article.

The next telephot, Fig. 3, was imagined