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J. D. ELLSWORTH

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ELECTRICAL PICTURE TRANSMISSION SYSTEM

Filed April 18, 1925

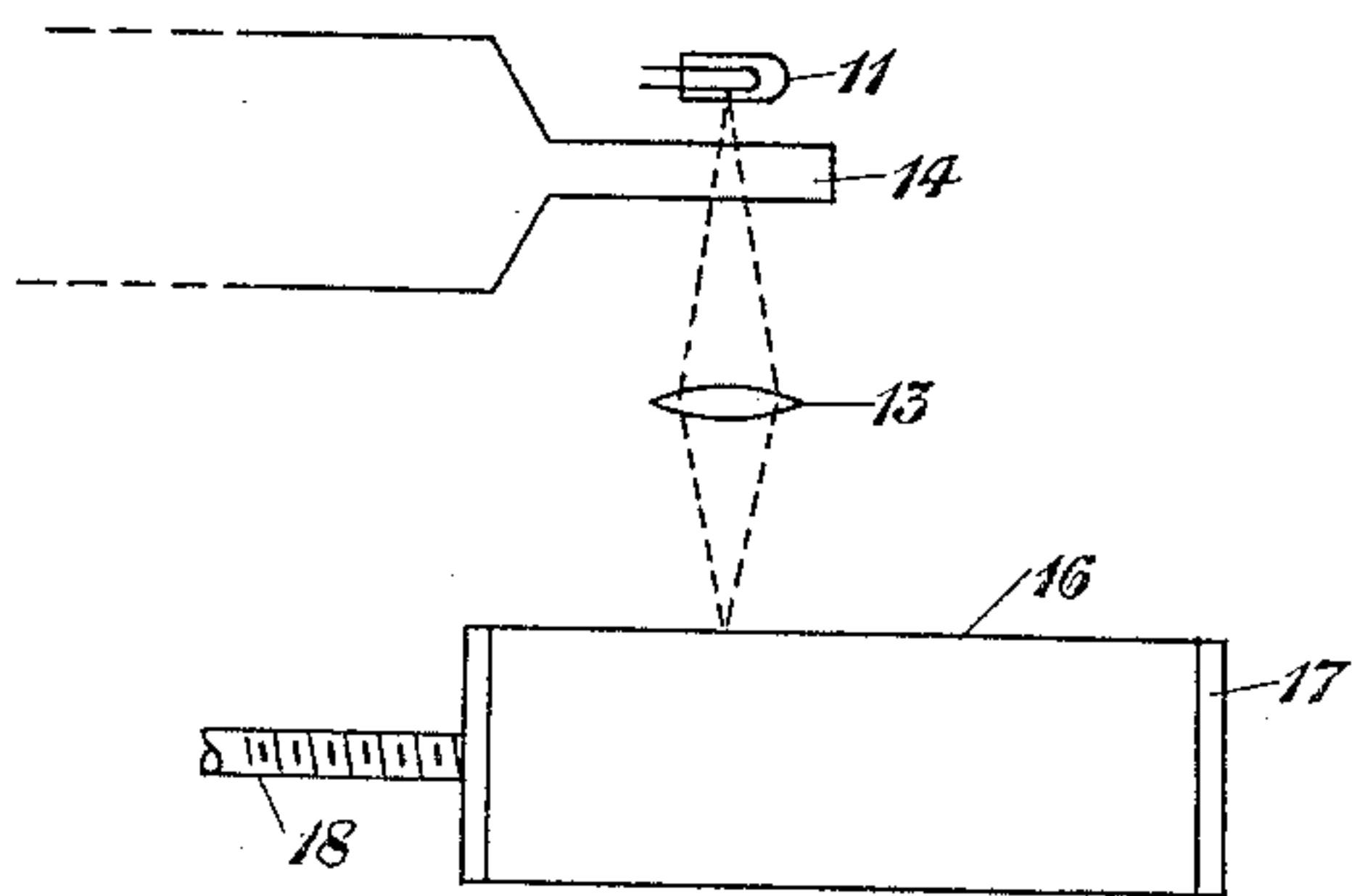


Fig. 1



Fig. 2

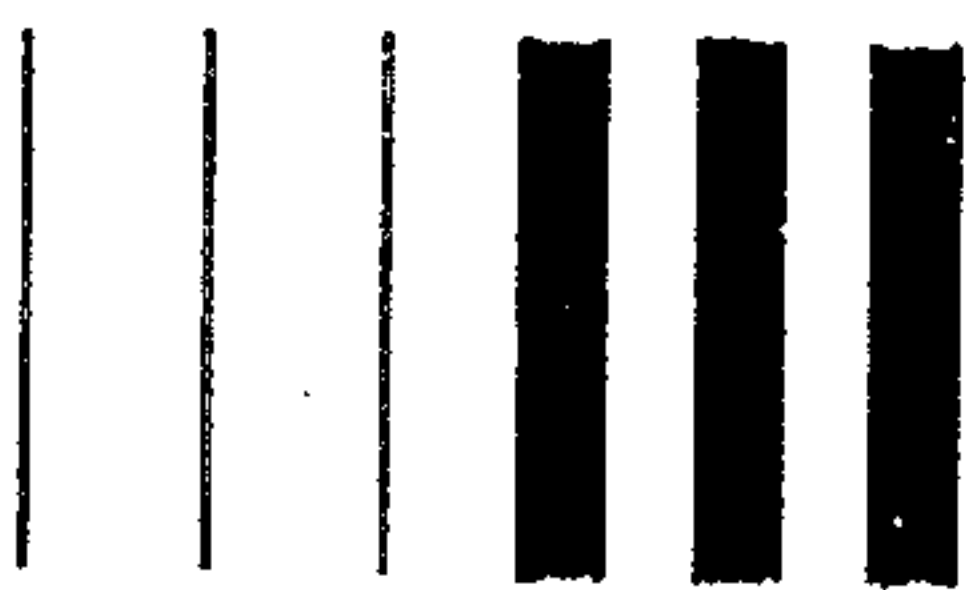


Fig. 3

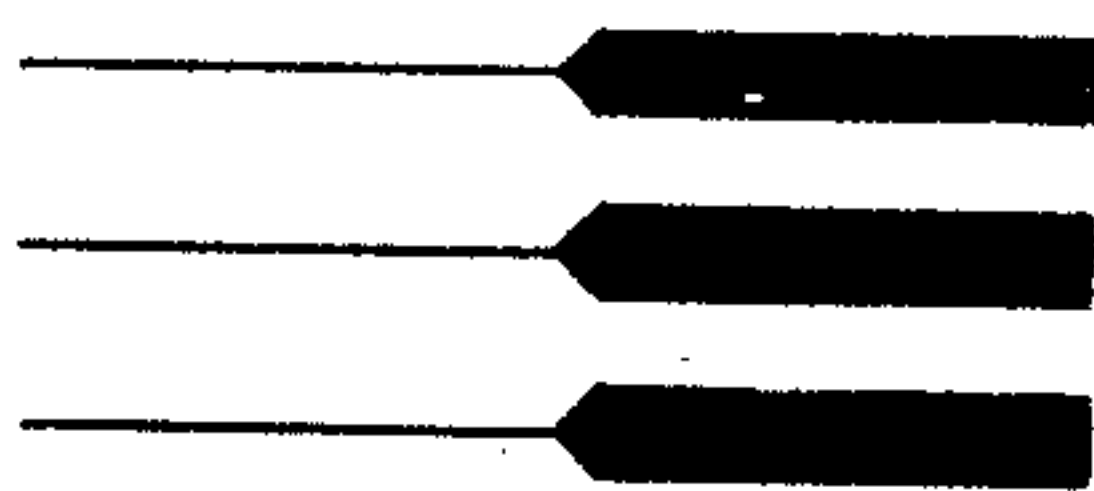


Fig. 3a

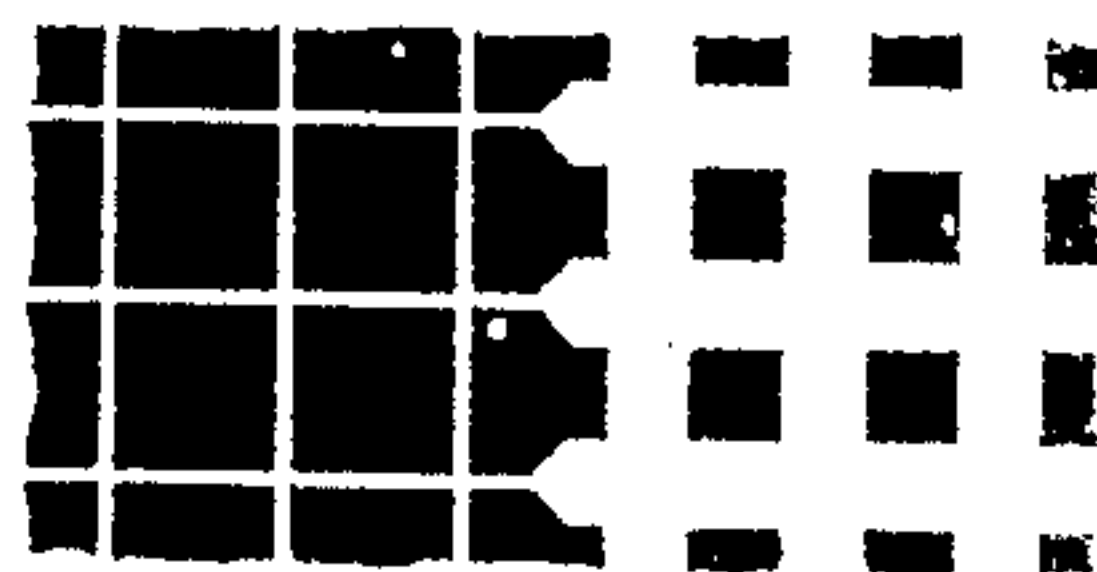


Fig. 4

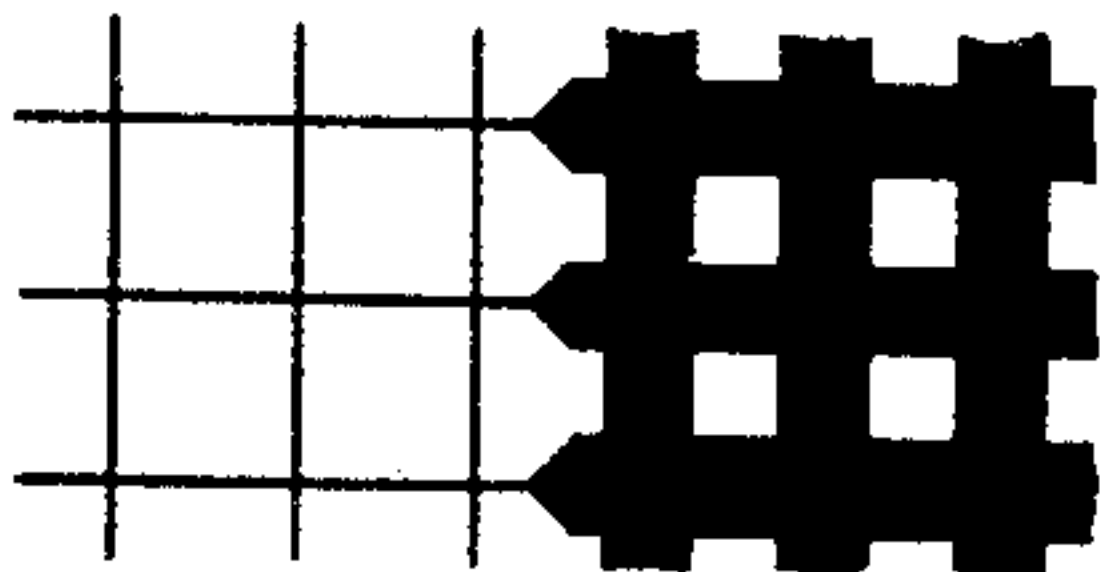


Fig. 5



Fig. 6

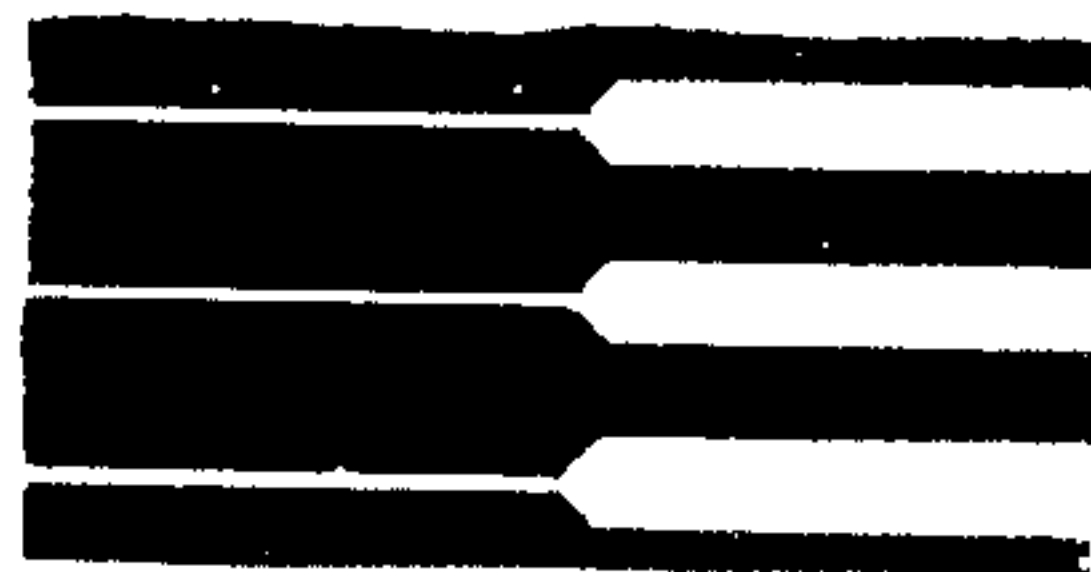


Fig. 6a



Fig. 7

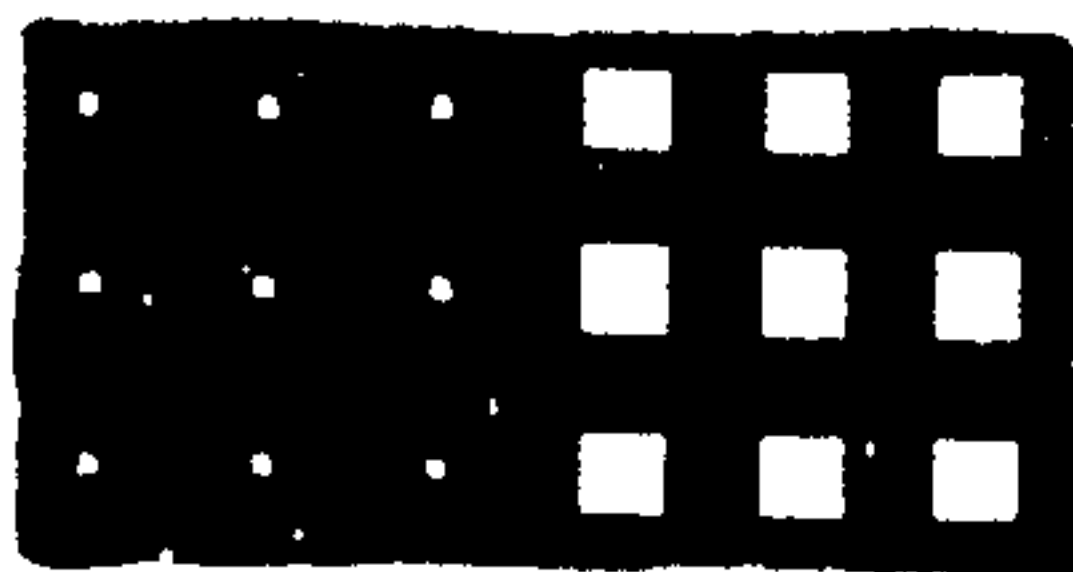


Fig. 8



Fig. 9

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ELECTRICAL PICTURE-TRANSMISSION SYSTEM.

Application filed April 18, 1925. Serial No. 24,202.

An object of my invention is to provide a new and improved system of recording received pictures in the electrical transmission of pictures. Another object of my invention is to provide for recording the received picture in a "half tone dot" pattern. Still another object of my invention involves recording the picture primarily in parallel lines of width varying according to the light shade, and deriving therefrom a picture recorded in dot pattern. These objects of my invention and various others will become apparent on consideration of a limited number of specific embodiments of the invention which I have chosen to illustrate and describe in the following specification taken with the accompanying drawings. It will be understood that the following description relates to these examples of the invention and that the invention will be defined in the appended claims.

Referring to the drawings, Figure 1 is a diagram illustrating picture receiving apparatus. Fig. 2 is a diagram illustrating how the varying shades may be indicated in a received picture record, and Figs. 3 to 9 are further diagrams showing how records of the character shown in Fig. 2 may be combined to get a dot pattern in the final record.

Light from the source 11 passes through the light valve 14 and is focused by the lens 13 on the sensitive film 16. This film 16 is wrapped on a drum 17 that is rotated on its axis and at the same time traversed longitudinally by the engagement of the screw-threaded shaft 18 with a suitable support. Thus it will be seen that the spot of the film 16 that receives the light through the lens 13 describes a helical course. The degree of light on this spot is determined by the light valve 14, which is controlled by the incoming picture transmitting current.

The record on the film 16 will accordingly be a helical line of varying width as determined by the width of opening of the light valve 14. This is shown in Fig. 2 where the variation of shade by the variation of the width of the lines is indicated.

Although the "half tone" effect will be clearly obtained by the picture recorded as shown in Fig. 2, it may be desirable in some instances to have this effect secured by a dot pattern. For this purpose I transmit the picture twice, the second time with the lines

of Fig. 2 running in a direction at a right angle to their direction in the first instance. The two received pictures are represented by the simple diagrams of Figs. 3 and 3^a, which represent two picture positives as received from the line. It will be seen that the shade is relatively light at the left and darker at the right in each of these positives.

These two positives in the form of films are then superposed and the common negative is made from them, which it will readily be seen has the appearance shown in Fig. 4. This negative is then printed on a metal plate, and the prints from this plate have the character shown in Fig. 5 where the light shade is given by large white squares and the dark shade is given by smaller white squares. The positive picture as recorded in Fig. 5 may be more pleasing and satisfactory than either of the positives of Fig. 3 or Fig. 3^a.

Another mode of procedure is to get the two positives of Fig. 3 and Fig. 3^a and print separate negatives from them as shown in Fig. 6 and Fig. 6^a. These negatives are then superposed and a common positive printed from them as shown in Fig. 7. This positive is then employed to get a corresponding negative as shown in Fig. 8, and this negative is printed on a metal plate and from the plate prints are taken as shown in Fig. 9, where the fine black dots appear in the high lights and the large black squares in the shadows.

Figs. 5 and 9 may be contrasted and it will be seen that the two methods give somewhat different results. Fig. 5 has somewhat dull high lights but very deep shadows, whereas Fig. 9 has very bright high lights and the shadows are not very deep. The entire picture, according to the method of Fig. 9, will be considerably lighter than according to Fig. 5. One advantage of the method of Fig. 5 is that a less number of photographic operations are required, and thus a cleaner printing negative is involved.

I claim:

1. The method of reproducing a picture, which consists in electrically transmitting and recording it with its original shades in parallel lines of width determined by the shades electrically transmitting and recording the picture again with the lines in

an angular direction with respect to the lines of the first record, and superposing the records.

2. The method of reproducing a picture,
5 which consists in electrically transmitting
and recording it with its original shades
in parallel lines of width corresponding to
the tone values of the various parts of the
picture, electrically transmitting and making
10 another similar record, with the lines extend-

ing at an angle relatively to the lines of the first record, and superposing the two records and printing therefrom to get a dot pattern with the shade corresponding to the magnitude of the dots.

In testimony whereof, I have signed my name to this specification this 17th day of April 1925.

JAMES D. ELLSWORTH.