

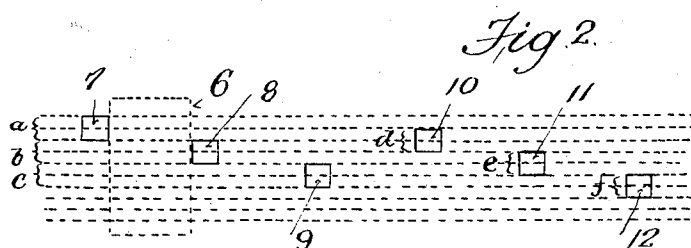
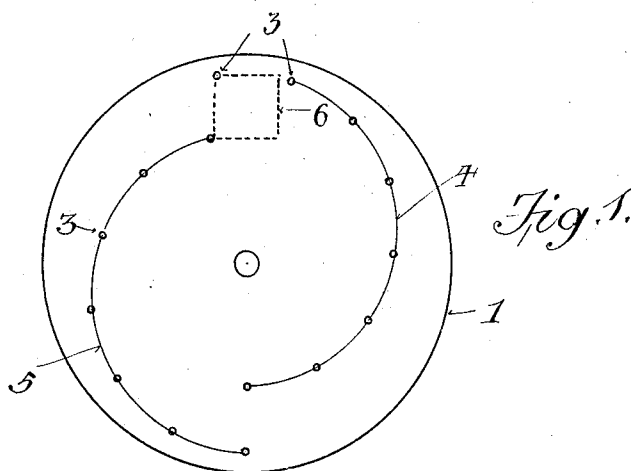
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1,897,483

SCANNING METHOD AND APPARATUS

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## UNITED STATES PATENT OFFICE

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## SCANNING METHOD AND APPARATUS

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This invention relates to electro-optical systems, and with particularity to methods and means for scanning in television, picture transmission, or similar systems.

5 The principal object of the invention is to provide a novel type of scanner whereby streaky effects are eliminated, and a greater detail may be achieved in analysis and synthesis.

10 A feature of the invention relates to a scanning device either of the disc or drum type wherein the scanning elements or apertures are arranged in a plurality of separate staggered spirals or helices.

15 Another feature of the invention relates to the method of scanning employing a perforated scanner, whereby the area to be scanned is analyzed or synthesized in alternate linear elements.

20 Other features and advantages not specifically enumerated will be apparent after a consideration of the following detailed descriptions and the appended claims.

Referring to the drawing—

25 Fig. 1 shows a scanning disc with the scanning elements arranged in accordance with the invention;

30 Fig. 2 is a schematic diagram showing how the picture field is scanned in alternate overlapping strips.

While the invention will be described as applied to a scanning device of the disc type, it will be understood that it can equally well be applied to other types of scanners such as drums, mirrors, traveling bands, etc.

35 Referring more particularly to Fig. 1, the numeral 1 represents a disc, preferably, although not necessarily, of light metal such as aluminum mounted on a shaft 2 adapted to be rotated at the requisite scanning speed by any well known means (not shown). Disc 1 is provided with two series of perforations or scanning elements 3 one series being arranged in the path of a half-turn spiral 4, the other series being arranged in the path of another half-turn spiral 5. The numeral 6 represents the field of view to be scanned. In accordance with well known television principles the elements 3 are spaced apart  
50 circumferentially a distance slightly greater

than the width "a" of the field 6. Consequently as the disc is rotated the elements 3 of spiral 4 trace substantially parallel paths across the field 6. In prior art devices of this general type it has been the practice to 55 offset the successive perforations radially towards the center of the disc so that each and every perforation traces a linear element which is adjacent to the linear elements traced by the next preceding and next succeeding 60 perforations. In accordance with the present invention the perforations in spiral 4 are displaced radially so that they trace adjacent linear strips which overlap the strips traced by spiral 4. Thus as shown in Fig. 2 the 65 elements 7, 8, 9, etc. of one spiral trace the linear strips *a*, *b*, *c*, etc., while the elements 10, 11, 12, etc. of the other spiral trace strips *d*, *e*, *f*, etc. which overlap the strips *a*, *b*, *c*, etc.

As a result of the overlapped method of 70 scanning, the streakiness incident to the prior art method of scanning is avoided, and greater effective detail may be achieved.

While the foregoing description relates to a scanner employed at a transmitter or 75 analyzer, it will be understood that the invention is applicable to receiving or synthesizing devices. Similarly the scanner may take the form of a drum or traveling band without departing from the spirit and 80 scope of the invention. Other changes and modifications will be apparent to those familiar with the art. Thus while the scanning elements are shown in Fig. 1 as of circular shape, they may be of any other shape 85 such as square or other polygonal shape as shown in Fig. 2. Furthermore the scanning elements may take the form of reflectors or even lenses adapted to illuminate or expose 90 a field of view in polygonal or circular elemental areas.

What is claimed is:

1. The method of scanning which comprises rotating a scanning device about a fixed axis, one portion of each revolution serving 95 to scan adjacent linear elements of an object or representation, another portion of each revolution serving to scan linear elements overlapping one-half of each of the width of the first mentioned elements. 100

2. The method of scanning an area for television which comprises analyzing said complete area in successive adjacent but non-overlapping linear strips, and then rescanning said complete area in other adjacent non-overlapping strips which overlap the first mentioned strips by one half of their width.

3. The method of scanning an area for television which comprises scanning the complete area in successive adjacent but non-overlapping linear strips, and then rescanning said complete area in other non-overlapping linear strips displaced one half of the strip width from the first scanning.

In testimony whereof I have hereunto set my hand on this 19th day of February A. D. 1930.

CHARLES J. KEOGAN.

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