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ННННН. АНННННН:

A technical drawing of a mechanical assembly. It features a horizontal shaft (2) supported by a vertical rod (3). The shaft is secured by a nut and washer assembly (5) at its right end. The shaft has a hatched section on its left end.

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Patented Dec. 28, 1943

2,337,736

UNITED STATES PATENT OFFICE

2,337,736

COLOR FILTER DISK

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Application January 30, 1941, Serial No. 376,710

1 Claim. (Cl. 88—111)

This invention relates to filter disks, and more particularly to color filter disks for use in color television systems.

In certain systems of color television, revolving disks are employed at the transmitter and the receiver for the purpose of successively filtering different colors of light images, in order that the different colors may be reproduced in response to successive scans at the receiver.

Heretofore, such color disks have usually been made of sheet material having a plurality of openings across which are stretched sheets of gelatin of different colors. Certain difficulties have been experienced with disks of this type, including vibrations and noises created when such disks are revolved at the required high speeds, as well as warping, particularly in the case of the larger sized disks used in television receivers of the direct-viewing type. Also, the filter sheets in this type of disk tend to separate themselves from the disk itself.

It is an object of the present invention, therefore, to provide an improved filter disk structure which is free from the faults encountered with previously used disks, and which is simple and relatively inexpensive in construction.

It is a further object of the invention to provide a filter disk so constructed that individual filter elements may separately be replaced, without disturbing the other elements, in the event that this is necessary or desirable.

In accordance with the present invention, there is provided a filter disk comprising a plurality of sectorially shaped elements which are transparent to light of different colors. These elements are secured at their inner ends to a hub, and their adjacent edges are shaped to engage each other. In a preferred embodiment of the invention, the radially extending edges of the elements are arcuately shaped, each of the edge surfaces being adapted to engage the corresponding edge surface of the adjacent element. In a modified embodiment of the invention, the outer edges of the sectorially shaped elements are secured to a circumferential member.

For a better understanding of the invention, together with other and further objects, reference is made to the following description taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claim.

In the accompanying drawing:

Fig. 1 is a front elevation of a filter disk embodying the present invention;

Fig. 2 is a fragmentary sectional view of the

filter disk of Fig. 1, taken on the line 2—2 of Fig. 1; and

Fig. 3 is a sectional view, taken on a line corresponding to the line A—A of Fig. 1, of a modified form of filter disk embodying the present invention.

Referring now more particularly to Fig. 1 of the drawing, there is shown a filter disk 1 comprising a plurality of sectorially shaped elements 2. Each element 2 is secured at its inner end to a flanged hub 3, in any suitable manner as for example, by rivets, as shown more clearly in Fig. 3. Each element 2 is transparent to light of a different color, as indicated by the cross hatching in the drawing. The broken-line enclosures 4 indicate the areas of the filter elements 2 which are actually utilized for the transmission of light.

In order to lend rigidity to the disk 1, the adjacent edges of the elements 2 are preferably alternately tongued and grooved, as shown more clearly in the sectional view of Fig. 2. When the edges of the elements 2 are formed in this manner, they engage each other securely and the complete disk is thereby substantially strengthened. Any element may be replaced, however, merely by freeing it from the hub 3.

In a modified embodiment of the invention, a section of which is shown in Fig. 3, the elements 2 are maintained in rigid relationship with each other by means of a circumferential member or rim 5, riveted or otherwise suitably secured to the elements 2. In this case, the adjacent edges of the elements 2 need not be tongued and grooved, but such construction may be employed if desired.

In accordance with a preferred form of the invention, the radially extending edges of the elements 2 are arcuately shaped. More particularly, as shown in Fig. 1, when the filter disk 1 includes six elements 2, the radius of curvature of these arcuately shaped edges is appropriately made substantially equal to the radius of the filter disk itself. It will be understood, however, that the radius of these edges may be greater or less than the radius of the disk. The adjacent edges need not necessarily be arcuately shaped, since, for example, the radially extending edges of the elements 2 may include one or more linear portions. The limiting factor in determining the shape of the adjacent edges of the elements 2 is the required shape of the minimum utilized portion indicated at 4 by the broken line in each of the elements. The shape and size of this portion preferably is such that, when the disk is in-

terposed in the path of light passing through the window, not shown, the color does not change during the scansion of a complete field. It will be understood that the shape of the enclosure 4 shown in Fig. 1 of the drawing is merely for the purpose of illustration, and that this shape may be modified as desired without departing from the scope of the present invention.

The color disk in accordance with the invention may be constructed of any suitable material. In one preferred embodiment, however, the elements 2 of the disk 1 were formed from a transparent plastic of different colors, and were molded in a mold of simple and inexpensive construction. It is one of the features of the invention that the filter disk comprises an assembly of identically shaped elements each of which is small enough to be readily molded in accordance with well-known technique.

While there has been described what is at present considered the preferred embodiment of the invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention, and it is, therefore, aimed in the appended claim to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

A composite filter disk structure comprising a hub and a plurality of sectorially shaped elements, the radially extending edges of which are of arcuate form and shaped to engage each other in tongue and groove fashion, each of said elements being secured to said hub and being transparent to light of a particular color.

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