

May 26, 1931.

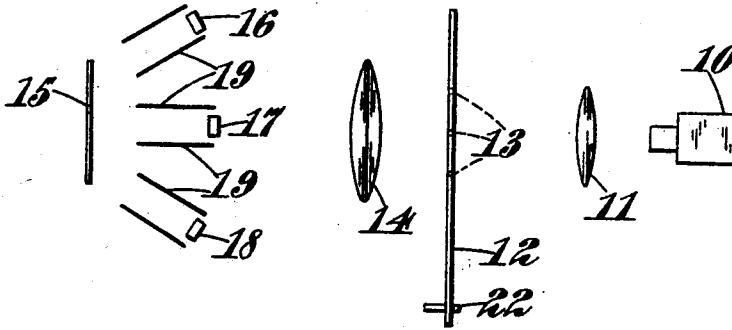
J. L. BAIRD

1,807,465

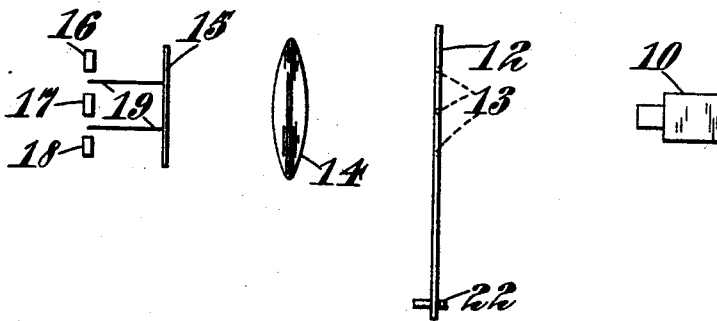
TELEVISION AND LIKE APPARATUS

Filed Oct. 7, 1929

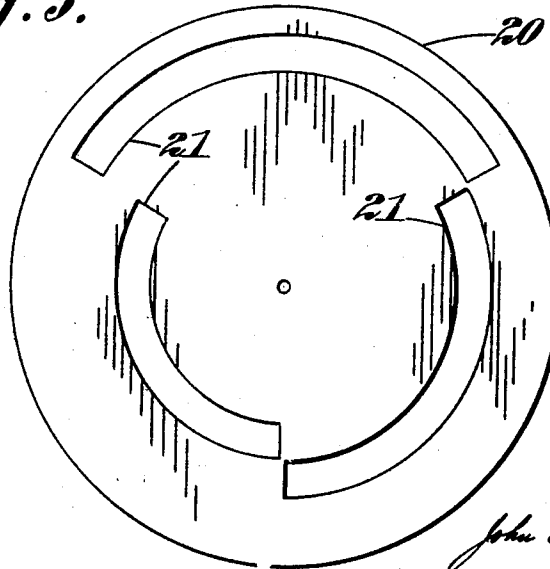
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



INVENTOR

*John Logie Baird*

*By Watson, Cuth, Morse & Smith*  
ATTYS

# UNITED STATES PATENT OFFICE

JOHN LOGIE BAIRD, OF LONDON, ENGLAND, ASSIGNOR TO TELEVISION LIMITED, OF LONDON, ENGLAND, A BRITISH COMPANY

## TELEVISION AND LIKE APPARATUS

Application filed October 7, 1929, Serial No. 397,985, and in Great Britain October 12, 1928.

This invention is for improvements in or relating to television and like apparatus and has for its object to provide improvements in connection with the means employed for exploring an object, an image of which is to be transmitted. Our British patent specification No. 269,658 describes a method whereby an object, an image of which is to be transmitted, may be explored by traversing over it a spot of light of high intensity.

According to this invention, in television or like apparatus, means are provided for exploring an object (an image of which is to be transmitted) in separate bands or zones by a plurality of light spots, one appropriated to each zone, and a plurality of light-sensitive cells of which one is allocated to each zone and each is activated by light reflected from the zone to which it is allocated.

Each light sensitive cell may be screened to prevent light from reaching it except from its appropriate zone or band.

Convenient forms of apparatus according to this invention will now be described by way of example, with reference to the accompanying diagrammatic drawings, in which:

Figure 1 represents a television apparatus according to this invention, for transmitting an image of an opaque object.

Figure 2 represents a modified form of television apparatus according to this invention for transmitting an image of a translucent object such as, for instance, of a cinematographic film.

Figure 3 represents a convenient form of shutter for use in television apparatus according to this invention.

Like references denote like parts throughout the drawings.

Light from a source 10 is projected in a parallel beam by a lens 11 onto an exploring device 12. The exploring device is provided with three concentric spirals of holes 13 through which the light passes. A converging lens 14 focusses the light which passes through the holes 13 of the exploring device on the object 15. When the exploring device rotates, the object 15 is explored by three spots of light. The spirals of holes 13 are

so arranged that the spots of light traverse adjacent zones of the object.

Referring to Figure 1, near to the object, but out of the field swept by the light spots, are arranged three light-sensitive cells or groups of cells 16, 17, 18. Each cell is screened in by partitions 19 of opaque material so that it can receive light rays reflected only from its appropriate zone of the object 13.

The light-sensitive cells may be disposed above or below the level of the object or alternatively, there may be two light sensitive cells for each zone of the object, one above the level of the object and the other below it.

With the arrangement shown diagrammatically in Figure 2, the light-sensitive cells 16, 17, 18 are placed behind the object 15, which is of translucent material. Only two screens 19 are necessary, and the light-sensitive cells 16, 17, 18 may have each an active area comparable with that of its zone, in which case they may be situated closely behind the object 15.

In the apparatus described above, three light-sensitive cells or groups of cells and three zones of the object are employed, but it falls within the scope of this invention to provide any number of such zones together with an equal number of light-sensitive cells or groups of cells.

In a television system in which the above described apparatus is employed, there may either be one channel of communication for each light-sensitive cell (e. g. three systems of conductors or three different wave-lengths) or there may be one common channel of communication.

If one common channel of communication is to be used, there may be employed a commutator or switching device, which connects the light-sensitive cells in turn to the amplifying and transmitting system or alternatively there may be employed a shutter of the type described in our co-pending British patent application No. 23,582 of 1929. Such a shutter, suitable for use in conjunction with apparatus described above, is illustrated in Figure 3. It consists of a circular disc 20 provided with as many slots 21 as there are zones

of the object 15. (In this instance, three.)  
The discs may conveniently be mounted on the  
axle 22 of the exploring device and driven  
thereby through a gear reduction of 3:1.

5 This invention is also applicable for use  
in the transmission by television, of images of  
groups of separate objects. Thus the appara-  
tus described above might be conveniently  
employed in the transmission of images of  
10 three persons. The spirals of holes 13 in the  
exploring device 12 might be slightly spaced  
apart so that the gaps between the persons  
would not be explored or transmitted.

I claim—

15 A scanning device for use in television ap-  
paratus comprising a source of light, a rotat-  
ing screen interposed between said source of  
light and an object to be scanned, said screen  
having a plurality of series of spirally ar-  
20 ranged apertures therein, the apertures in  
the different series being spaced radially of  
said screen whereby light rays will be passed  
from said source across different sections of  
the object simultaneously, and a plurality of  
25 light sensitive devices each positioned to re-  
ceive light from one of said sections of the  
object only.

In testimony whereof I affix my signature.  
JOHN LOGIE BAIRD.

30

35

40

45

50

55

60

65