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E. TRAUB

2,149,198

TELEVISION APPARATUS

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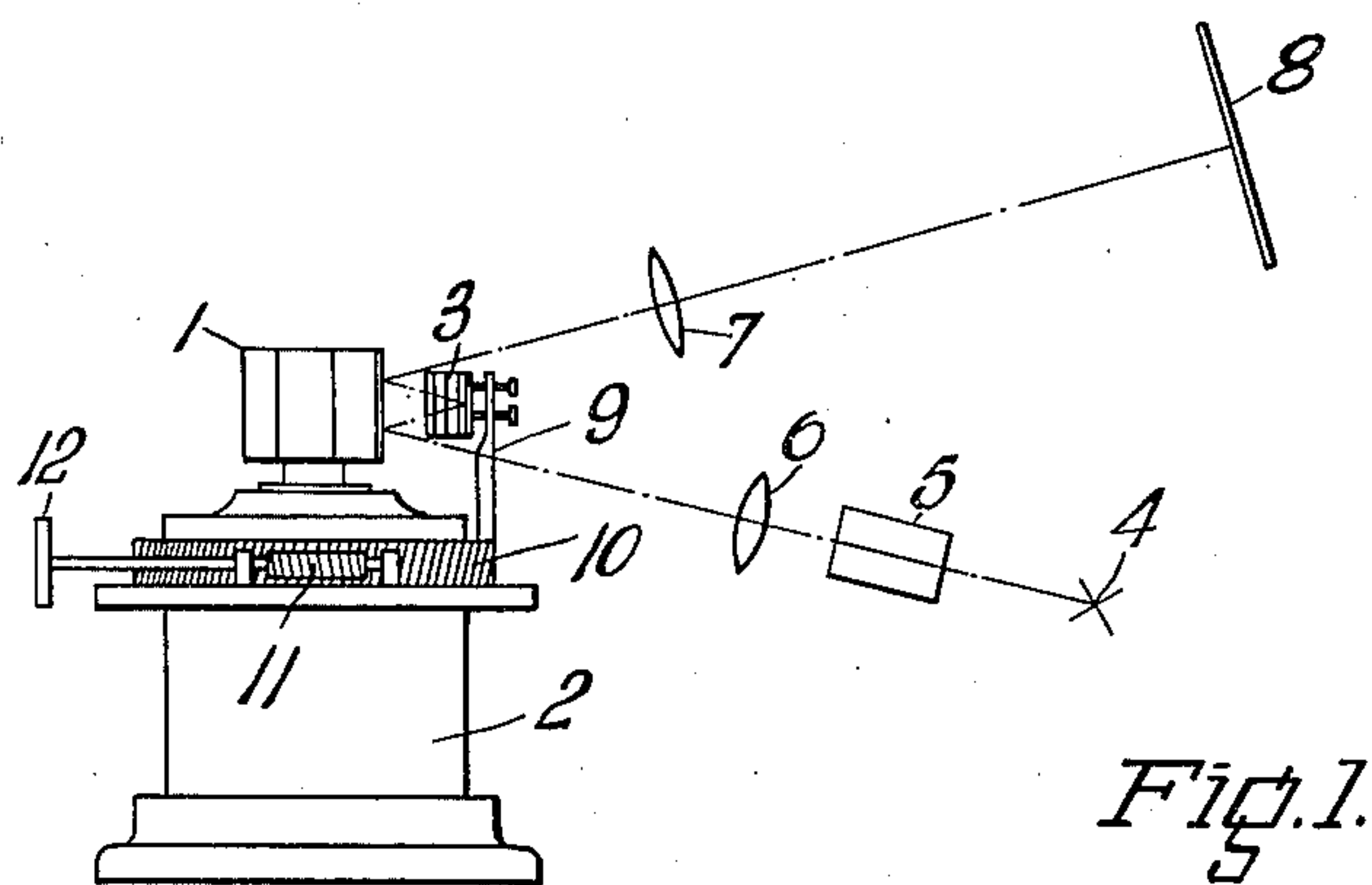


Fig. 1.

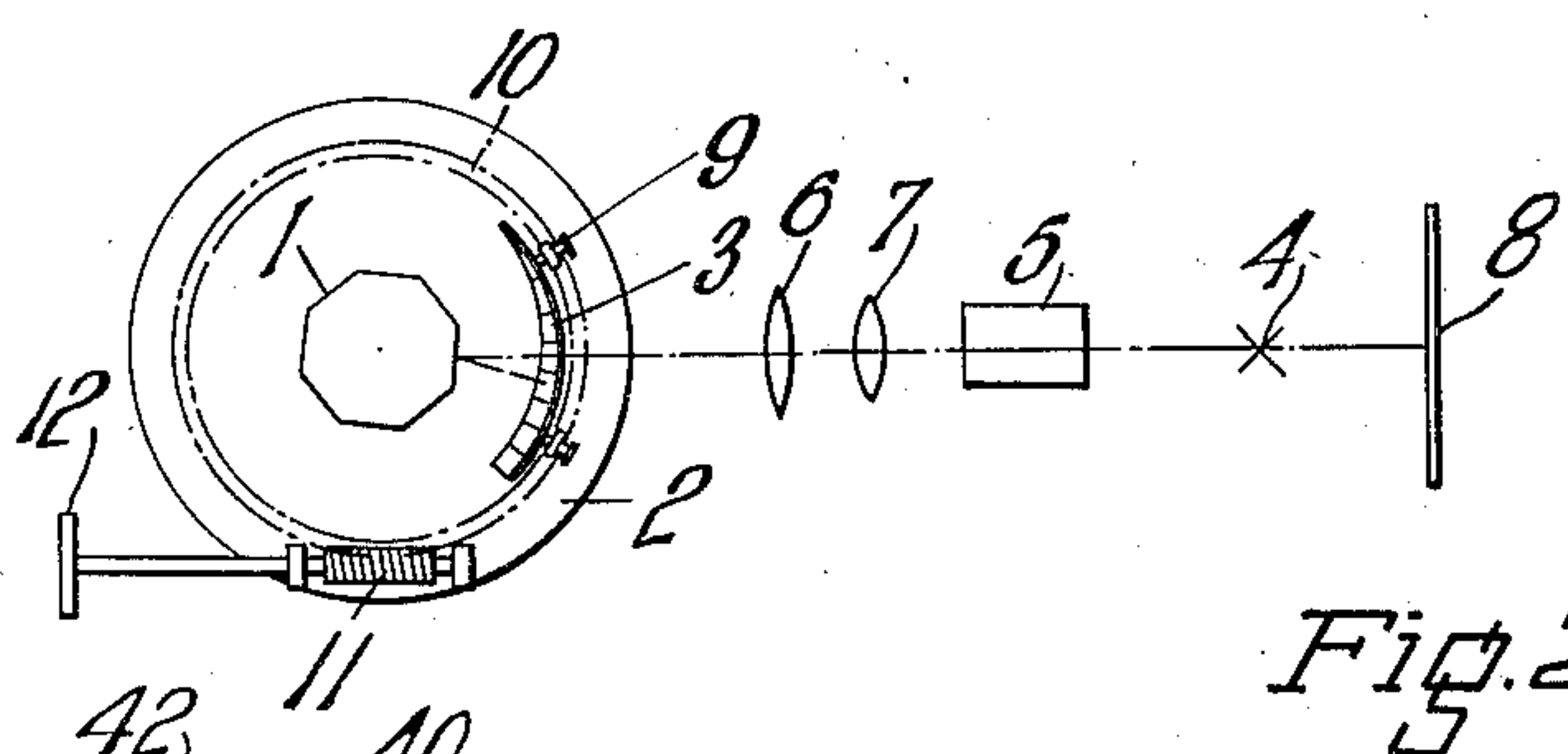


Fig. 2.

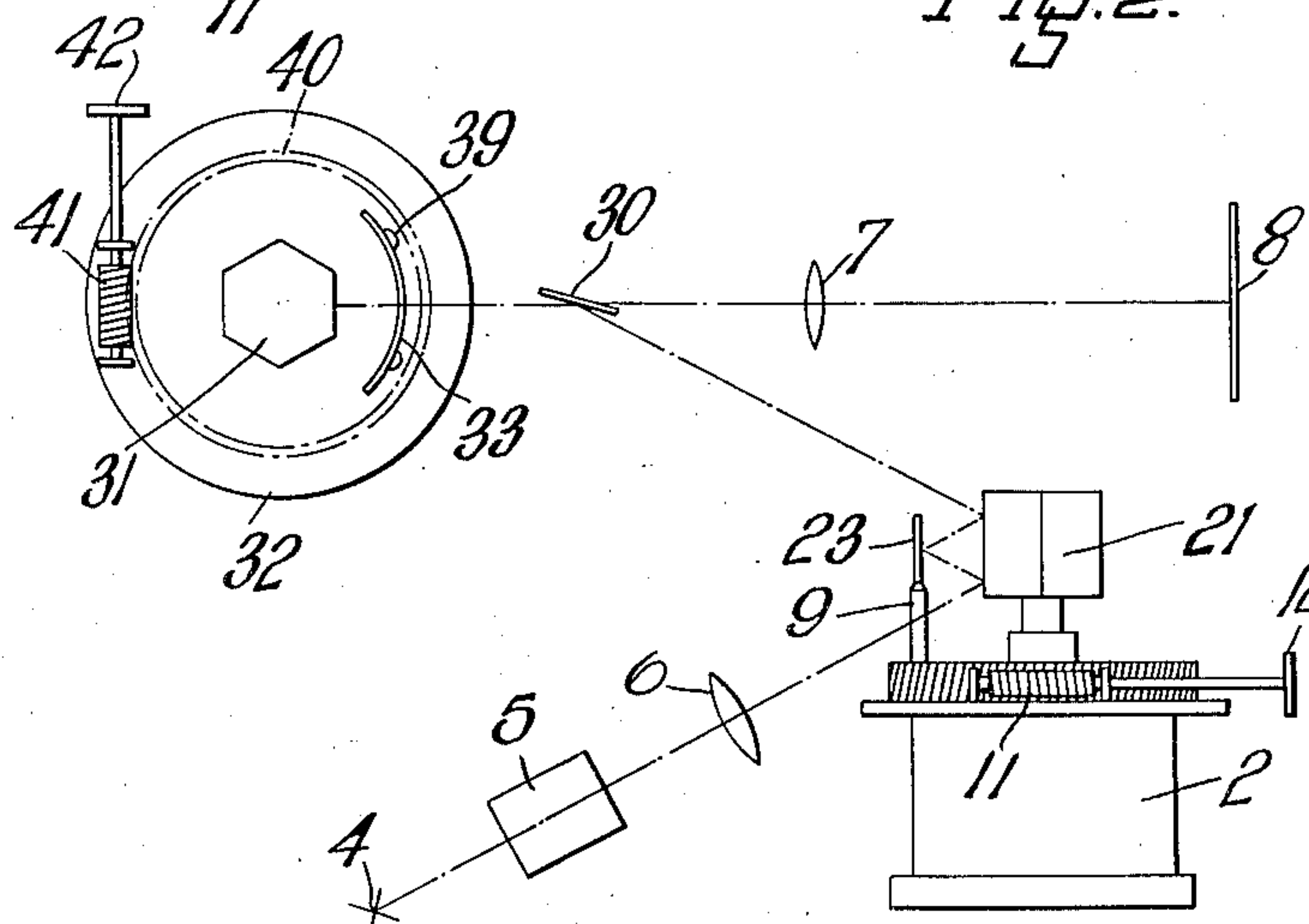


Fig. 3.

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TELEVISION APPARATUS

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4 Claims. (Cl. 178—7.6)

This invention relates to television apparatus of the kind employing mechanical scanning. The invention has particular reference to the means used in such apparatus for obtaining correct phasing of the receiving with the transmitting apparatus, so as to obtain correct framing of the image produced at the receiver.

Hitherto it has been the practice to correct the phasing by rotating the stator of the motor which drives the rotating scanning device, the stator winding, or the whole motor carcass being so mounted as to permit such rotation. Such rotation of the stator causes slight acceleration or deceleration of the rotor and thus of the scanning device, so that the phasing is adjusted. This arrangement, however, suffers from practical disadvantages, particularly in systems employing high speed motors. In such cases it is desirable to bolt the motor down onto a bed of sponge rubber or other absorbent material, so as to reduce noise; it is then difficult or impossible to arrange for rotation of the stator.

According to the present invention I employ a scanning device of the kind in which scanning is effected by the co-operation of stationary and rotating members and I so mount the stationary member of this device that it can be rotated substantially about the axis of the device. Framing can then be effected by rotational adjustment of the stationary member. Examples of scanning devices of the kind referred to are described in the specifications of prior British Letters Patent Nos. 394,446, 412,026, 419,120, 425,552, 429,690, 440,055 and 448,738.

The invention is illustrated in the accompanying drawing, which is of a somewhat diagrammatic character. In this drawing Figures 1 and 2 are a side elevation and a plan respectively of a scanning device of the kind described in my prior British specification No. 425,552, but modified in accordance with the present invention; Figure 3 is a side elevation of a device of the kind described in my prior British specification No. 448,238, similarly modified.

The device of Figures 1 and 2 comprises a polygonal drum 1, which is rotated about its axis by a motor 2. Each of the side faces of the drum is provided with a reflecting surface, the various reflecting surfaces each lying at a different angle to the axis. Co-operating with this rotating member is a stationary member 3, comprising a number of reflecting surfaces each inclined at a different angle to the axis. Light from a source 4 passes through a modulating device 5 and a lens 6 and falls on the lower part of one of the reflect-

ing surfaces of the rotating member 1. From thence the light beam is reflected onto the stationary member 3, thence back onto the upper part of the reflecting surface of the drum 1, and thence through a lens 7 onto the screen 8, where it forms a small spot of light. Rotation of the drum 1 causes this spot to move in a line transversely across the screen, while the different inclination of the reflecting surfaces of the stationary and rotating mirrors cause successive scanning lines to be displaced vertically on the screen.

In accordance with the present invention, the stationary member 3 is so mounted that it can be rotated about the axis of the drum 1. As shown, the member 3 is supported by brackets 9 upon a toothed ring 10, rotatably mounted upon the upper end of the motor 2. This ring is engaged by a worm 11 which can be rotated by means of a knob 12. Framing of the picture can be accomplished by rotating the knob 12 and thus adjusting the stationary member 3 about the axis of the device. A movement of the stationary member through a distance equal to the width of one of its component reflecting surfaces is sufficient to shift the picture laterally through its whole width.

In the device of Figure 3 scanning in the two dimensions of the picture is effected by two separate devices, each of the kind above referred to. The high speed or line scanner is in general similar to the scanning device of Figures 1 and 2, but the reflecting surfaces of the rotating drum 21 and of the stationary member 23 are all parallel to the axis of the device. The beam of light leaving this device is directed by a reflecting surface 30 into the low speed or framing scanner, which comprises a drum 31, rotated by a motor 32 and having its side faces formed with reflecting surfaces, and a stationary member 33 having a plurality of reflecting surfaces, all the reflecting surfaces lying parallel to the axis. The stationary member 33 is supported by brackets 39 on a toothed wheel 40 engaging with a worm 41, which can be rotated by a knob 42. The low speed and high speed scanners are thus similar to one another, but are mounted with their axes perpendicular and have their drums driven at different speeds. The beam of light leaving the low speed scanner passes through the lens 7 onto the screen 8. With this arrangement transverse framing of the picture can be effected by rotation of the knob 12, while vertical framing can be effected independently by adjustment of the knob 42.

What I claim and desire to secure by Letters Patent is:

1. A television scanning device comprising a rotating member, a stationary member disposed concentrically about said rotating member, a reflecting surface on said rotating member adapted to receive a beam of light from said stationary member and direct it onto the area to be scanned, and means for adjusting said stationary member about a point corresponding substantially to the axis of the device.

2. A television scanning device comprising a rotating member of polygonal section, a stationary member disposed concentrically about said polygonal member, a plurality of stationary mirrors carried by said stationary member, a plurality of rotating mirrors each carried by one face of said rotating member, and means for adjusting said stationary member about an axis which substantially coincides with the axis of said rotating member.

3. A television scanning device comprising a rotating member and a stationary member disposed concentrically about said rotating member, said rotating and stationary members together

constituting a high speed or line scanner, a second rotating member and a second stationary member disposed concentrically about said second rotating member, said second rotating and stationary members together constituting a low speed framing scanner, all of said members being adapted to receive in succession a modulated beam of light and impart scanning movement thereto, means for effecting adjustment of said first stationary member substantially about the axis of said first rotating member and independent means for effecting adjustment of said second stationary member substantially about the axis of said second rotating member.

4. A television scanning device comprising a rotary member, a stationary member disposed concentrically about said rotary member, said stationary member comprising a plurality of stationary reflectors each adapted to receive a beam of light from said rotary member and to direct it back thereonto, and means for adjusting said stationary member about an axis which substantially coincides with the axis of said rotary member.

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