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RONTGEN TUBE WITH ANODE TURNING  
ABOUT ITS LONGITUDINAL AXIS  
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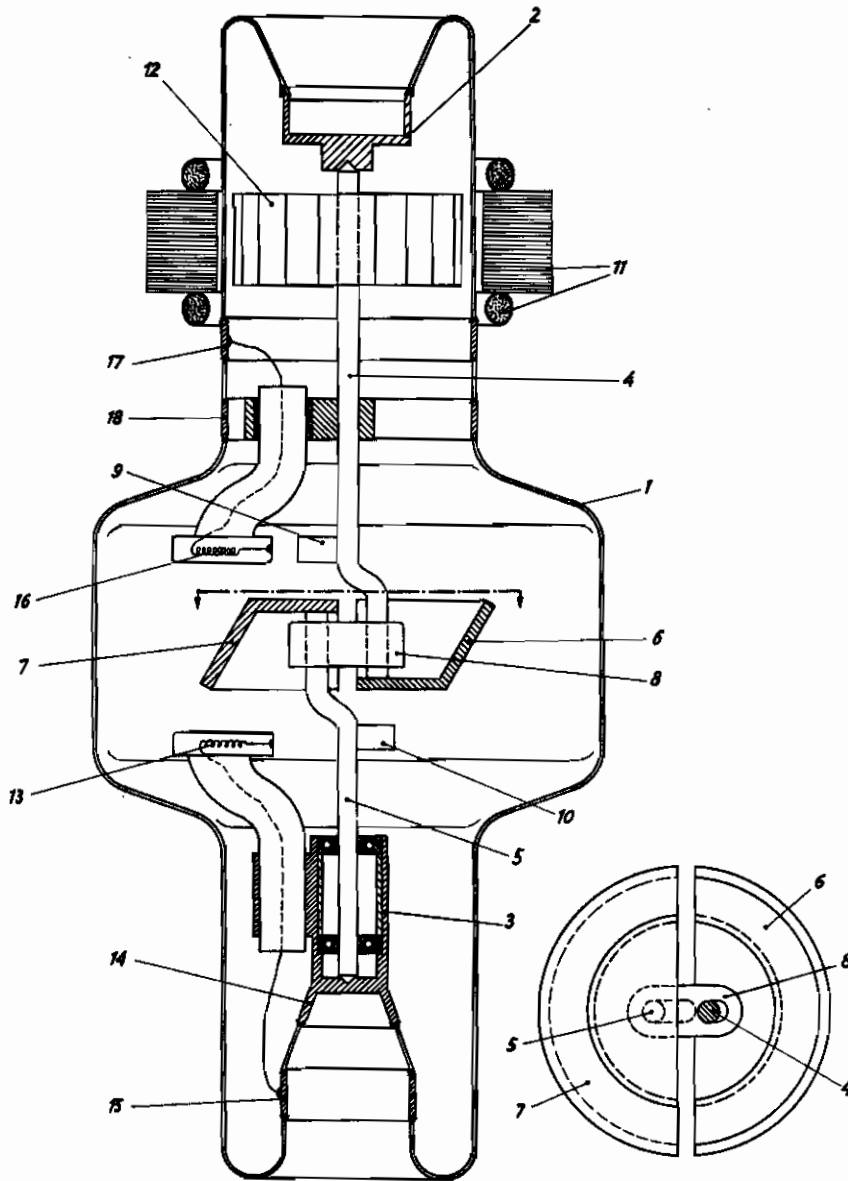


Fig. 1

Fig. 2

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# ALIEN PROPERTY CUSTODIAN

## RONTGEN TUBE WITH ANODE TURNING ABOUT ITS LONGITUDINAL AXIS

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The invention relates to a novel Röntgen tube with anode turning about its longitudinal axis and equipped with two anodes, two cathodes and synchronous drive for both anodes so that, when the tube is directly connected to an alternating current-high tension, both half-cycles are utilized for the production of Röntgen rays originating at the same point of space. By the Röntgen tube according to the invention, the rectifier connections with four high tension incandescent cathode rectifiers, used up to the present in all high power Röntgen arrangements, become superfluous, so that the Röntgen arrangements become much simpler and cheaper.

The two anodes are preferably constructed as half rotary bodies of substantially similar shape and oppositely directed arranged rotatable in the same space portion with corresponding coordination of a cathode to each anode. A synchronous motor may be provided as drive for each anode. The drive may, however, be effected by one single synchronous motor, the two anodes being then connected the one with the other by a coupling piece possessing high insulating capability and heat constancy, for instance of quartz glass. Also in this coupling it is advisable to balance each anode alone relative to the turning axis in order to avoid too great mechanical stressing of the coupling piece.

A Röntgen tube according to the invention shown by way of example partly diagrammatically in the accompanying drawing, in which

Fig. 1 shows a longitudinal section through the tube and

Fig. 2 is a top plan view on the anodes corresponding to the section line II—II in Fig. 1.

In the high vacuum envelope 1 of the Röntgen tube, said envelope consisting preferably of glass, a bearing 2, 3 respectively is inserted at the two ends each with ball bearings, for the pivot axes, 4, 5 of the two anodes 6, 7. The anodes are coupled the one with the other by an insulating piece 8 made for instance of quartz glass. Each anode is balanced alone relatively to its turning axis by means of balancing bodies 9, 10. A motor making 3000 revolutions per minute (alternating current of 50 periods being supposed) is provided, the stator of this motor being designated by 11 and the rotor mounted on the turning axle 4 by 12. An incandescent cathode 13 is coordinated to the anode 6, the filament voltage being fed to said cathode through the intermediary of metal seals 14, 15 of the high vacuum envelope. The incandescent cathode 16 with the metal seals 17, 18 belongs to the anode 7.

When building up the Röntgen tube according to the invention the anode 6 and the incandescent cathode 16 in the one half-cycle have positive potential and the anode 7 and the incandescent cathode 13 have negative potential. In the other half-cycle the potential distribution is inverse. In the anode position shown in the drawing the incandescent cathode is negative, the anode 7 positive and Röntgen rays are emitted from the tube to the left. In the next half-cycle the anode has turned by 180°, the incandescent cathode 13 is negative and the anode 6 positive, so that Röntgen rays are emitted from the same in the same direction. The position of the burning point in the space remains unchanged.

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