G. G. CAMPION.

RÖNTGEN RAY AND LIKE APPARATUS.

APPLICATION FILED MAY 27, 1919.

1,378,007. Patented May 17, 1921.

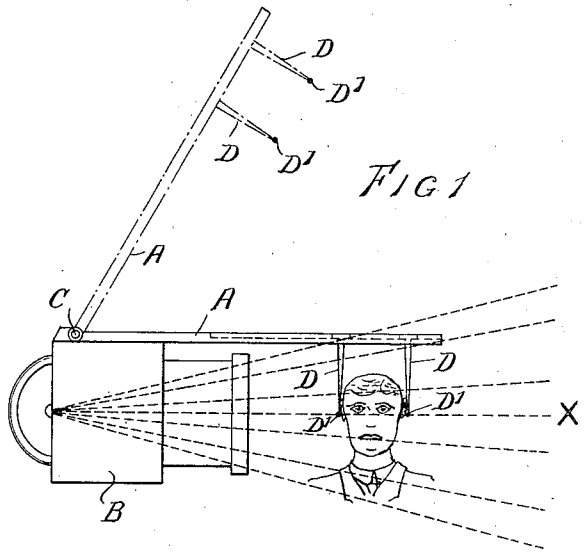


FIG 1

FIG 2

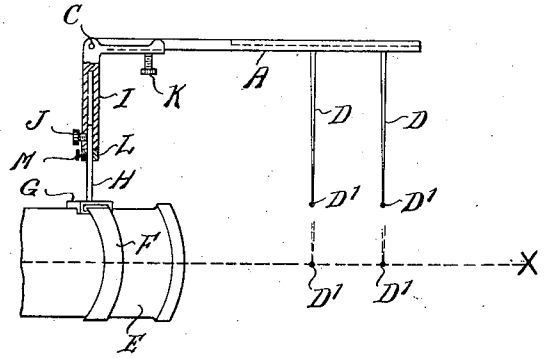
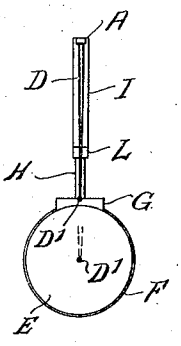


FIG 3.



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UNITED STATES PATENT OFFICE.

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RÖNTGEN-RAY AND LIKE APPARATUS.

1,378,007. Specification of Letters Patent. Patented May 17, 1921.

Application filed May 27, 1919. Serial No. 300,151.

To all whom it may concern:

Be it known that I, GEORGE GORING CAMPION, a subject of the King of Great Britain, residing at 264 Oxford road, Manchester, in the county of Lancaster, England, have invented new and useful Improvements in and Relating to Röntgen-Ray and like Apparatus, of which the following is a specification.

My invention relates to a director for the central beam or X-ray of normal incidence and has for its object to enable the central beam or X-ray of normal incidence to be directed to and passed through any required limb or part of the body or other object being radiographed, the point of entrance and the point of exit of the normal ray being by this invention exactly indicated by the positions of the free extremities of two pointers. These free extremities of the pointers may in use be placed upon two skin marks or other defined points on opposite sides of any limb or part of any object being radiographed, so as to insure the normal ray passing direct from any defined point on one side of such object to any defined point on the other side of such object.

The director consists of a rod of wood or other suitable material attached to and detachable from any suitable part of the tube-holder or of a cylinder or other diaphragm used in combination with a tube-holder. Upon this rod slide two pointers, each pointer having at one end of it a suitable attachment enabling it to slide backward and forward along the whole length of the rod. The rod is arranged in such a way as to enable it to be brought at will exactly parallel to the central beam or X-ray of normal incidence and at such a distance from that ray as may be found most convenient. The other two ends of the pointers are so arranged as to be when at rest, and to continue to be when sliding along the rod, exactly in the path of the ray of normal incidence. These pointers may be of wood or of other suitable material and if made of wood or other material transparent to the rays, may have metal beads fixed in their free extremities to enable these extremities to be exactly centered with the diaphragm and target of the X-ray tube and to retain this centered position in their excursions along the rod.

I illustrate two embodiments of my invention in the accompanying sheet of drawings in which,—

Figure 1 is an elevation showing the director with the pointers applied to the head of a patient and indicating the path of the central beam or X-ray of normal incidence.

Figs. 2 and 3 are elevations of an alternative construction of the director.

Referring first to the construction illustrated by Fig. 1, the essential feature of the device consists of the removable arm A pivoted or otherwise detachably connected at C to the X-ray tube box B or other tube carrier. On the arm A are mounted two sliding pointers D which can be moved to any required distance apart along the arm A. The free extremities of the pointers D may be furnished with metal beads or tips D′ so that if maintained in position a radiographic record of the points of entry and exit of the central beam or X-ray of normal incidence, designated X on the drawings, will be obtained. As shown the pointers D are applied in this instance one on either side of the head of the patient to be radiographed and the tips D′ coincide with and indicate the path of the central beam or X-ray of normal incidence.

In the alternative construction illustrated by Figs. 2 and 3 the director is shown mounted on a carrier attached to the cylindrical diaphragm E instead of the tube box B. In this case the carrier consists of a metal band F on which is mounted a sliding or adjustable plate or platform G capable of being moved to any desired point around the circumference of the cylinder E and there fixed or clamped in position by a pinching screw or equivalent not shown. The sliding platform G carries a rod or pillar H upon which is fitted a sliding sleeve or socket I fixed in position after adjustment by means of a pinching screw J or equivalent device. The arm A with the sliding pointers D is pivoted or otherwise connected at C to the sleeve or socket I so that the arm can be raised out of the way when desired.

Between the sleeve or socket I and the platform G is a sliding collar L which can be fixed at any position on the pillar H by a screw M. This collar is adjusted once for all in such a position that when the sleeve rests on its upper surface the free extremities D′ of the pointers are in center with the

X-ray of normal incidence. Its purpose is to insure that after temporary detachment and replacement of the sleeve, rod, &c., the free extremities of the pointers shall again come into exact alinement with the X-ray of normal incidence.

Further the angle of the arm A may be regulated for fine adjustment by the screw K.

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

In Röntgen-ray or like apparatus, means for directing the central beam or X-ray of normal incidence comprising a carrier, an adjustable standard adjustably mounted upon said carrier, an arm mounted upon said standard, adjustable pointers slidably mounted upon said arm, and beads carried by said pointers for indicating the path of said central beam.

In testimony whereof I have signed my name to this specification.

GEORGE GORING CAMPION.

Witnesses:

S. W. GILLETT,

HERBERT ROWLAND ABBEY.