

No. 648,660.

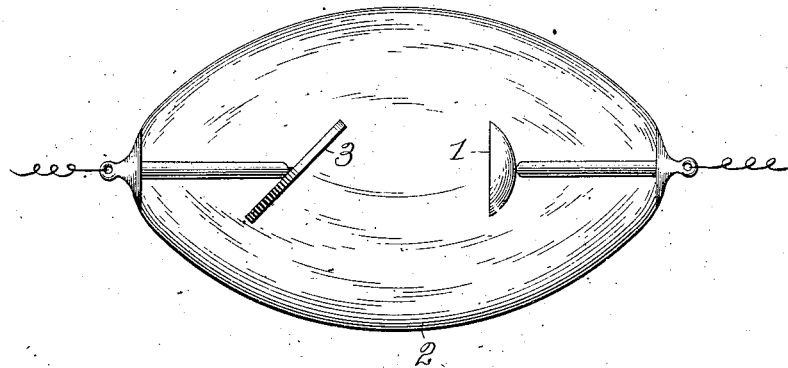
Patented May 1, 1900.

R. A. FESSENDEN.

X-RAY APPARATUS.

(Application filed Aug. 7, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

REGINALD A. FESSENDEN, OF ALLEGHENY, PENNSYLVANIA.

X-RAY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 648,660, dated May 1, 1900.

Application filed August 7, 1899. Serial No. 729,396. (No model.)

To all whom it may concern:

Be it known that I, REGINALD A. FESSENDEN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in X-Ray Apparatus, of which improvements the following is a specification.

The invention described herein relates to certain improvements in apparatus for the generation of Roentgen or X rays.

The invention has for its object a large increase in the quantity of X-rays generated by a current of given potential and frequency, as will be hereinafter more fully described and claimed.

In the accompanying drawing, forming a part of this specification, is shown a Crookes or focus tube having my improvements applied thereto.

As is well known to those skilled in the art, the Roentgen or X rays are generated by the impact of electrically-charged particles from the cathode-pole on a suitable surface, such as glass, aluminium, platinum, &c. The cathode is usually made in the form of a plate 1, suitably secured within the vacuum tube or bulb 2, at or near one end thereof, and is connected electrically to the negative pole of the electric generator. The X-ray generator is preferably made in the form of a metal plate or disk 3, suitably supported in the bulb opposite the cathode 1, which preferably has the side toward the plate 3 made convex, so as to focus the cathode-currents on the plate 3. The generating or anticathodic plate is generally arranged at an angle to the axis of the cathode-plate, so that the X-rays will be directed through the side of the bulb, and the plate will operate more efficiently in the production of X-rays if it is electrically connected

to the positive pole of the electric generator. By the impact of the electrically-charged particles from the cathode upon the anticathodic surface the energy is transformed to X-rays or the X-rays are generated at points of impact of the particles.

The anticathodic surface has heretofore been formed by a plate or disk formed of or coated with platinum. I have found that a surface formed of osmium is much more efficient in the production of X-rays. In the practice of my invention the generating or transforming surface is formed of osmium, and by preference such surface is formed by the face of a metal plate coated with and formed entirely of osmium. While it is considered to be the better practice to connect the anticathodic plate to the positive pole of the electric generator, I do not limit myself to such an arrangement.

I claim herein as my invention—

1. As an improvement in an apparatus for the production of X-rays, an anticathodic plate having the surface exposed to the cathode-currents formed of osmium, substantially as set forth.

2. As an improvement in apparatus for the production of X-rays, an anticathodic plate formed of osmium, substantially as set forth.

3. As an improvement in apparatus for the production of X-rays, an anticathodic plate connected to the positive pole of an electric generator and having the surface exposed to cathode-currents, formed of osmium, substantially as set forth.

In testimony whereof I have hereunto set my hand.

REGINALD A. FESSENDEN.

Witnesses:

DARWIN S. WOLCOTT,
F. E. GAITHER.