Having then formed something like an approximate idea of what these rays are, we may ask ourselves what is necessary for the generation of them? A Crookes' vacuum tube and an electric current of very high potential. How can such a current be obtained? From (*a*) an induction coil, (*b*) high frequency apparatus, or (*c*) a static machine.

FIG. 1.—INDUCTION COIL AND TUBE ARRANGED TO PHOTOGRAPH A HAND.

So far, the induction coil has been found the most satisfactory means of generating the current, and will alone be considered here.

The amount of electrical energy necessary to light up an ordinary 16 candle-power incandescent lamp is quite sufficient for X ray work when employed with suitable apparatus. In the ordinary electric light circuit the voltage is low, varying from 50 to 120 volts, and the current or amperes high. For the proper excitation of a Crookes' tube we must have very high potential, many thousand volts, but a very low current—a mere fraction of one ampere being all that is necessary.