

Electricity in The War

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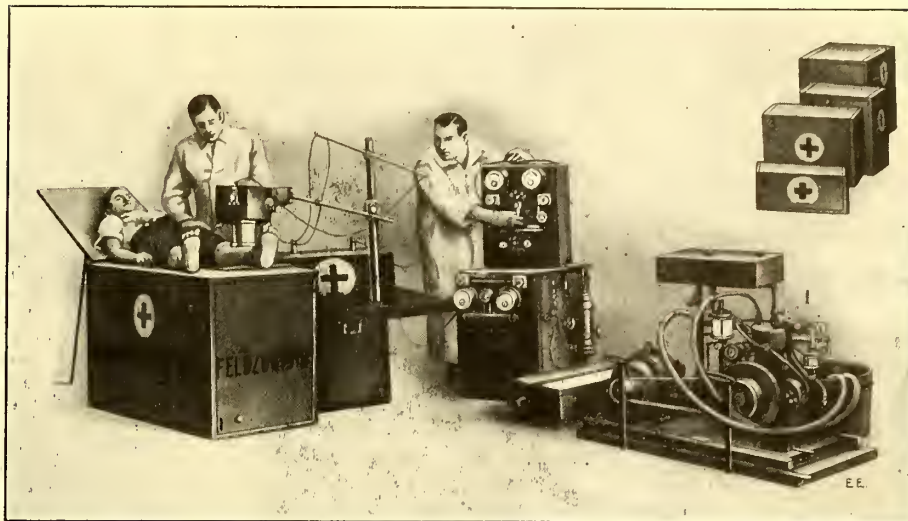
(Berlin Correspondent of the Electrical Experimenter.)

X-RAYS IN THE GERMAN ARMY.

X-Rays have played a very important part in the wonderful medical corps of the German Army. It is probably the most important apparatus in their military hospitals.

One type of X-Ray machine, packed in four portable boxes, is illustrated here. The X-Ray apparatus herewith shown was especially developed by a German company, and six of these machines were transported lately to the Bavarian Army.

The electrical power, which the 30 cm. induction coil receives, is supplied by a dynamo driven by a gasoline engine. The case No. 1, in which the dynamo and engine is packed, also serves as an operating table when the engine and dynamo are removed, as observed. One side of the



Ingenious Compact X-Ray Outfit of the German Army for Field Purposes.

case, with suitable bracket arm, serves as an adjustable head rest. The second case contains a millivoltmeter, ammeter, and a control switchboard. The switchboard is mounted on top of the cover. It is readily removed by turning and placing it in an

upright position, which makes it then ready for use. A third case serves as a container for two X-Ray tubes; the case also serves as an X-Ray tube stand and houses the tube diaphragm holder, etc., in transit.

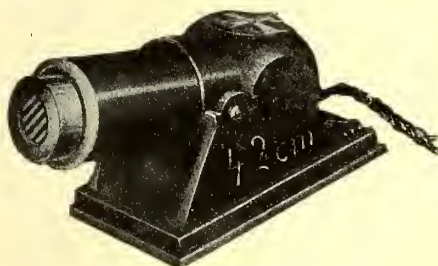
The powerful induction coil which supplies the X-Ray tube with the high tension voltage is sealed very carefully in a special box, in order to stand all kinds of rough use. Another case, No. 4, contains a set of storage batteries for emergency purposes, such as the failure of

the dynamo and engine to work.

The apparatus has plenty of work to do, indeed, as it forms one of the surtest methods of locating bullets, fragments of shells, etc., which may have entered the flesh and muscles.

NEW GERMAN WAR NOVELTIES.

The two illustrations produced herewith give a good idea how the Germans are exploiting the war, even as to electrical novelties.



Cigar Lighter in Shape of a Gun.

The electrical lamp reproduced herewith is a tungsten lamp and its filament is shaped in the form of the Iron Cross. The filament is of a spiral form, and is held in position from the sides of the lamp wall by means of the ordinary wire suspensions; these are not shown in our illustration. A lamp of this kind gives a very novel effect, particularly if used for advertising purposes, patriotic fetes, etc. These lamps are at the present time made from 15 to 50 candle power and are manufactured in pear shape form as well as round globes.

Our other illustration represents one of the famous 42-centimeter guns, of which we have heard so much in the war. It is, however, not a gun and only the outside shape conforms to same. It is nothing more or less than an electrical cigar lighter in the shape of a gun; a lamp cord connected to the back of the gun is used to make connection with the electric circuit for 110 volts. A simple arrangement is provided which makes the front end glow as soon as the gun is picked up from its base; the housing



is made of a brown zinc casting. The design is very pleasing, and there seems to be a good market for a device of this kind in Germany at the present time.

ARC LAMPS IN HIGH GAS PRESSURES.

It is stated in the "Elektrotechnische Zeitschrift" that Prof. Lummer, of Breslau, Germany, has run arc lamps under pressures of 20 atmospheres absolute, and obtained intrinsic brilliancies 18 times higher than those obtained at ordinary atmospheric pressure, the calculated temperature rising from approximately 4,200 deg. C. to about 7,500 deg. C. The experiments are to be continued.

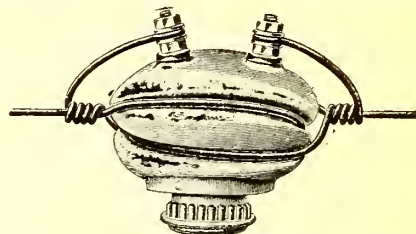
EFFICIENCY OF THE ELECTRIC ARC.

The "Elektrotechnische Zeitschrift," (Germany), shows two developments tending to increase the efficiency of the electric arc. One of these is due to Dr. W. Wedding, who heats the ends of the carbons by means of a flat non-luminous flame, though it appears that the actual function of the flame is to cool that part of the carbons to which it is applied. From the information that is given the arrangement is not altogether clear. It is obvious that if the efficiency of an arc is to be increased, the current density in the luminous part of the electrode must be increased so as to obtain a higher temperature. Evidently this desideratum has been achieved by Dr. Wedding, as the candlepower in a certain direction is raised from 30,000 up to about 100,000 Hefner candles, although the temperature of the carbons in certain parts has been reduced.

The idea of cooling has also been attempted in this country, and in this case alcohol vapor was the cooling medium. From the practical point of view, however, increase of pressure does not seem to be a very promising direction in which to work.

NOVEL GERMAN INSULATOR.

In a recent issue of *Helios*, a German electrical paper, appears the cut here reproduced of a novel porcelain line insulator, which combines means for anchoring



This Novel Insulator Has Fuse Plug Inside.

the two wires as well as a fuse plug. It is suitable for a variety of purposes, such as lighting lines and telegraph or telephone circuits. The fuse connections are brought to two binding posts as perceived.

A NOVEL FLASHLIGHT RHEOSTAT.

A rheostat built in the flashlight is the latest German novelty. This obviates the tendency to burn out tungsten bulbs of low rating used on fresh batteries as seen from the illustration. There is the usual battery b, lamp l, push button p, and lastly, the rheostat r. This adjustable resistance r consists of a few feet of wire wound on a tube, with a slider arranged on the brass piece making contact with the center or base of the lamp. To insert more resistance, for fresh

battery, the coil is removed and the slide moved toward the right. Then it and the battery are replaced. Tungsten lamps of 2.5 to 3.5 volts rating can be used with a battery yielding 4.5 volts when fresh. As the battery ages, the rheostat enables one to adjust the voltage to the lamp as required.