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1,440,750.

E. SCHRÖDER,  
ELECTRIC RIVET HEATER.  
FILED JULY 6, 1921.

Fig. 1.

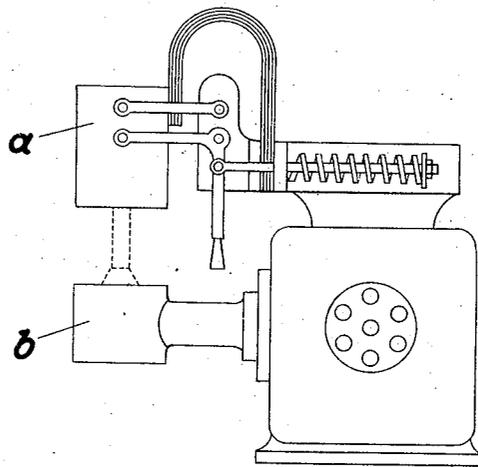


Fig. 2.

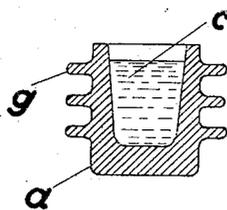
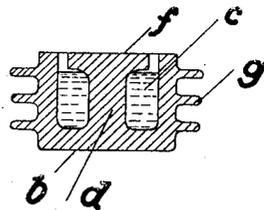


Fig. 3.



Inventor:

Eduard Schröder

By

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# UNITED STATES PATENT OFFICE.

EDMUND SCHRÖDER, OF BERLIN, GERMANY.

## ELECTRIC RIVET HEATER.

Application filed July 6, 1921. Serial No. 482,741.

*To all whom it may concern:*

Be it known that I, EDMUND SCHRÖDER, engineer, a citizen of the German Republic, and residing at Nos. 48-51 Maybach-Ufer, Berlin, Germany, have invented certain new and useful Improvements in Electric Rivet Heaters, of which the following is a specification.

With rivet heaters operating with electric resistance heating it is known to cool the electrodes by conducting a liquid through them. In contradistinction to this the present invention consists in cooling the electrodes by letting them evaporate the cooling liquid which latter is poured into a cavity provided in the electrode for the purpose in view. By this means the cooling operation is simplified and the heater is made portable owing to its independency of liquid-conducting pipes.

In order to make my invention more clear, I refer to the accompanying drawing in which Figure 1 is a side-view of an electric rivet heater constructed according to my invention; Figure 2 is a vertical section through the upper electrode; and Figure 3 is a vertical section through the lower electrode.

*a* and *b* are the two electrodes which are to be cooled by evaporating the cooling liquid. The electrode *a* is hollow like a vessel and is filled with the liquid *c* to be evaporated. The lower electrode *b* has two spaces or cavities which are separated one from the other by a broad middle web *d* having an enlarged head *f*. The spaces or cavities of the electrode *b* are in open communication with the atmosphere in order to allow of the steam freely escaping, just as with the electrode *a*. The cooling may be increased by providing the electrodes with ribs *g* enlarging the outer electrode surface which is in contact with the air.

The cooling liquid is simply poured into the electrodes and is supplemented from time to time by another quantity, corresponding to the consumption.

The electrodes, especially the lower one, may be so large that the cooling space is ca-

pable of enclosing, for instance, the oil-box of a transformer, cooling this latter, too.

Having now described my invention what I desire to secure by a patent of the United States is:

1. An electrode adapted for use in connection with an electric rivet heater and having a space which communicates with the atmosphere at the top of the electrode and is adapted to receive a cooling liquid to be evaporated by the heat of the electrode.

2. An electrode adapted for use in connection with an electric rivet heater and having spaces which communicate with the atmosphere at the top of the electrode and are adapted to receive a cooling liquid to be evaporated by the heat of the electrode.

3. An electrode adapted for use in connection with an electric rivet heater and having two spaces which communicate with the atmosphere at the top of the electrode and are adapted to receive a cooling liquid to be evaporated by the heat of the electrode; and a web separating said spaces from each other and forming part of the electrode and extending upwards from the electrode bottom.

4. An electrode adapted for use in connection with an electric rivet heater and having two spaces which communicate with the atmosphere at the top of the electrode and are adapted to receive a cooling liquid to be evaporated by the heat of the electrode; a web separating said spaces from each other and forming part of the electrode and extending upwards from the electrode bottom; and an enlarged head at said web.

5. An electric rivet heater, comprising, in combination, a transformer; an upper electrode having a space which communicates with the atmosphere at the top of the electrode and is adapted to receive a cooling liquid; and a lower electrode having also such a space; said lower electrode consisting of a body, a middle portion and an enlarged head upon this latter, for the purpose set forth.

In witness whereof I have hereunto set my hand.

EDMUND SCHRÖDER.