No. 857,138. PATENTED JUNE 18, 1907

P. WÖBBER.

REGULATING RESISTANCE FOR ELECTRIC CURRENTS.

APPLICATION FILED NOV. 20, 1906.

Fig. 1

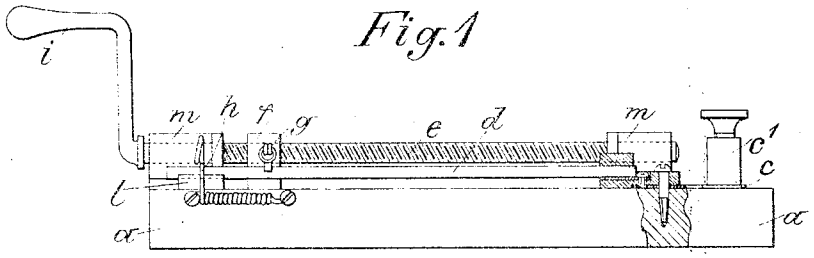
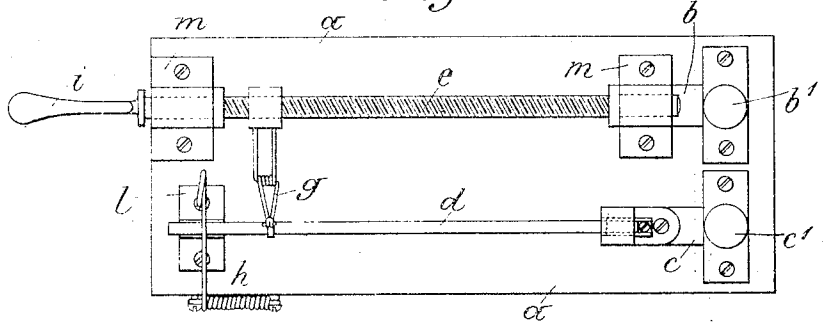


Fig. 2



Witnesses:

William Schulz

Adolph Miner

Inventor

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by his attorney

Frank A. Briesen

UNITED STATES PATENT OFFICE.

PAUL WÖBBER, OF CUXHAVEN, GERMANY.

REGULATING RESISTANCE FOR ELECTRIC CURRENTS.

No. 857,138. Specification of Letters Patent. Patented June 18, 1907.

Application filed November 20, 1906. Serial No. 344,216.

To all whom it may concern:

Be it known that I, PAUL WÖBBER, a citizen of the German Empire, and a resident of Cuxhaven, Germany, have invented certain new and useful Improvements in Regulating Resistances for Electric Currents, of which the following is a specification.

The present invention has for its object a regulating resistance for electric current, which is particularly adapted for use in medical and especially dental practice; its purpose is to restrict the electric current to the smallest possible amount at the beginning and to increase the amount very gradually. To this end a non-conductor of an absorbent material is provided in the apparatus, one of its ends being immersed in liquid, which is gradually sucked through the whole of the non-conductor, thereby gradually rendering it a conductor, and increasing the strength of the current in the same proportion.

This apparatus is of great importance in dental practice, especially for effecting cataphoresis and similar operations and also for all similar technical purposes where it is desirable to permit the electric current to become operative gradually by switching in the current as slowly and uniformly as possible. The known devices, which are preferably provided with nickel resistances have not succeeded in complying with these conditions, because the current supplied by them is always too powerful in the first place, and then increases in strength intermittently. These defects are obviated by means of the apparatus hereinafter described.

A constructional form of this apparatus is illustrated by way of example in the accompanying drawing, in which:—

Figure 1 represents the same in side elevation, and Fig. 2 represents a plan view.

The apparatus comprises the switch board *a*, upon which the contacts *b* and *c* with terminal screws b^1 and c^1 for the connection of the conducting wires are arranged. To the contact *b* a screw spindle *e* is connected; this spindle ends in a handle *i* and is mounted in bearing blocks *m*. A slide block or nut *f* is mounted upon the spindle *e*, and is correspondingly screw-threaded. A rod *d* of wood or other non-conducting absorbent material is connected with the contact *c*, its extremity resting in a cavity in the plate *l*, where it is held by a spring *h*. A contact spring *g* fixed upon the slide *f* engages with the rod *d*. By rotating the handle *i* in one direction or the other, the contact spring *g* may be caused to slide forward or backward on the rod *d*.

When the apparatus is in use, the rod *d* is withdrawn and one of its ends is immersed in water or other appropriate liquid; this end, which may be covered with moistened cotton wool, is inserted in the contact *c*. The moisture is then gradually sucked throughout the whole of the rod, and as soon as it reaches the contact spring *g* closes the circuit. At first the current is very weak, but becomes gradually stronger in proportion as more moisture reaches the contact. Finally, it may be still further increased by sliding the contact spring nearer to the contact *c*.

What I claim is:

1. A device of the character described, comprising a pair of contacts, an absorbent non-conducting rod connected to one of said contacts, a liquid element carried by said rod and means for metallically connecting said rod to the other contact, substantially as specified.

2. A device of the character described, comprising a pair of contacts, an absorbent non-conducting rod connected to one of said contacts, a liquid element carried by said rod a screw spindle connected to the other contact, and a slide movable on the spindle and adapted to engage the rod, substantially as specified.

Signed by me at Cuxhaven, Germany, this 31st day of October, 1906.

PAUL WÖBBER.

Witnesses:
PAUL THODE,
GEORG HEINRICH.