(No Model.)

H. P. & F. H. BROWN.

ARTIFICIAL ELECTRICAL RESISTANCE.

No. 347,766. Patented Aug. 24, 1886.

Fig. 1

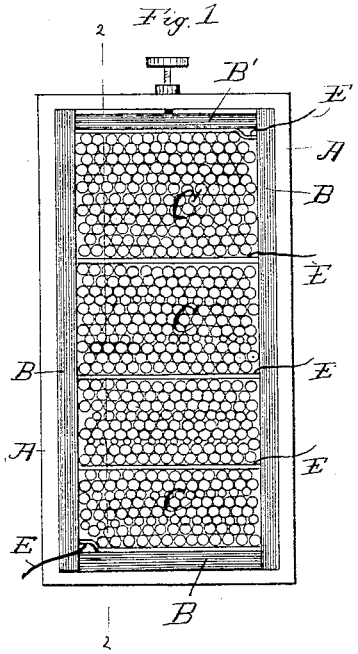


Fig. 2

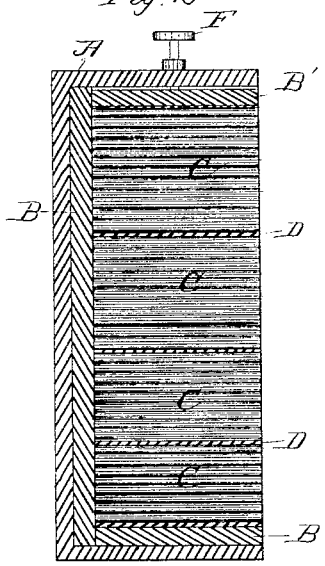


Fig. 3

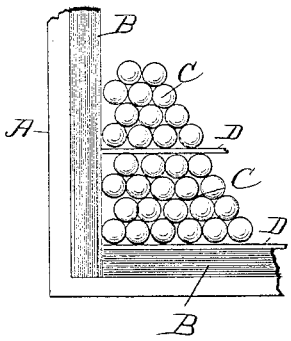
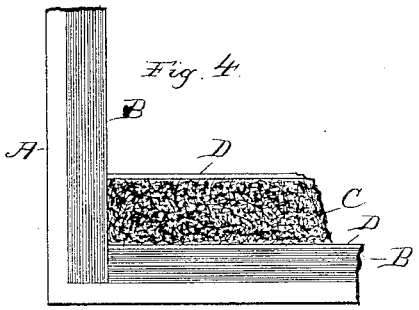


Fig. 4



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UNITED STATES PATENT OFFICE.

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ARTIFICIAL ELECTRICAL RESISTANCE.

SPECIFICATION forming part of Letters Patent No. 347,766, dated August 24, 1886.

Application filed March 6, 1886. Serial No. 194,192. (No model.)

To all whom it may concern:

Be it known that we, HAROLD P. BROWN and FRANCIS HERBERT BROWN, citizens of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Artificial Electrical Resistances, of which the following is a specification.

Our invention relates to artificial electric resistances for rheostats, current-regulators, &c.

We have discovered by experiment that a very cheap and efficient electric resistance may be formed out of small pieces of metal of a regular or irregular shape piled together—as, for example, short straight pieces of wire laid one on top of another, or iron chips or shavings—as, for example, those from a lathe—or small pieces of iron of a spherical or other shape piled together in a suitable inclosing case or box. The degree of resistance may be varied by making the metal pieces smaller or larger, and also by varying the pressure upon the pile, or its area in cross-section. Iron is the preferable metal to use, and the glaze which is usually found upon wire should be removed by heating to a bright red, or baking, or otherwise, when short pieces of wire are used. The resistance-pile may be divided into parts by contact plates or pieces inserted at intervals, with one or the other of which the circuit-wires may be connected, according to the amount of resistance desired to be placed in the circuit.

We are of course aware that coils of wire have heretofore been used for resistance; but we find that a much less amount of wire will produce the same resistance when it is cut up into short pieces, and such pieces piled one on top of another.

Where it is desired to facilitate the escape of heat, the resistance-piles should be provided with ventilating-passages in and through them.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a front elevation of a resistance-pile embodying our invention. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a detail view showing as a modification the small metal pieces in the form of balls, and Fig. 4 is a view showing a modification wherein iron filings are used.

In said drawings, A represents a box or case, preferably of iron, furnished with slate or other insulating-lining, B.

C C are small fine pieces of metal piled together, preferably short pieces of iron wire from which the glaze has been removed, constituting the resistance. At intervals contact plates or pieces D D are or may be inserted, with which the circuit-wires E E may be connected.

F is a screw, the end of which bears against the movable plate B′ at the top of the resistance-pile, and by which the pressure upon the pile may be regulated and the resistance thereby adjusted. The resistance may also be adjusted by varying the cross-sectional area of the mass or pile of resistance pieces.

We claim—

1. The artificial resistance, consisting in a pile of short pieces of wire placed one on top of another, substantially as specified.

2. The artificial electric resistance, consisting in a mass or pile composed of a great number of small fine pieces of metal piled together in contact with each other, having contact plates or pieces inserted at intervals, substantially as specified.

3. The artificial resistance, consisting in a pile of short pieces of wire placed one on top of another, having contact plates or strips inserted at intervals, substantially as specified.

4. The artificial resistance, consisting in a pile of short pieces of wire placed one on top of another, having contact plates or strips inserted at intervals, in combination with case A, having lining B, of insulating material, substantially as specified.

5. The artificial resistance, consisting in a pile of small fine pieces of metal having contact plates or strips inserted at intervals, in combination with case A, having insulating-lining B, substantially as specified.

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