

No. 795,803.

PATENTED JULY 25, 1905.

E. VEDOVELLI.
ELECTRICAL RESISTANCE.
APPLICATION FILED MAY 23, 1904.

FIG.1.

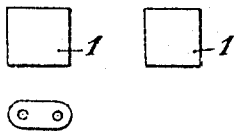


FIG.2.

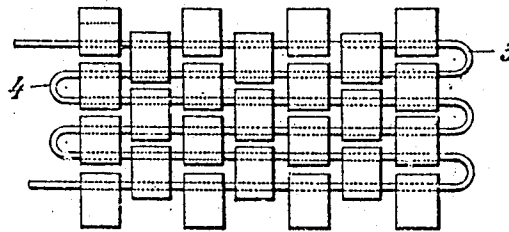


FIG.3.

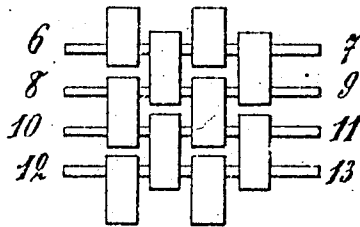


FIG.4.

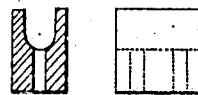


FIG.5.

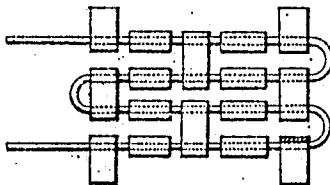
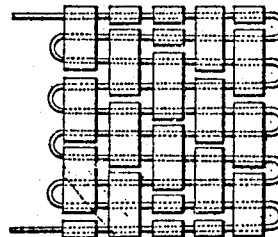


FIG.6.



WITNESSES:

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ELECTRICAL RESISTANCE.

No. 795,803.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed May 23, 1904. Serial No. 209,246.

To all whom it may concern:

Be it known that I, ELISE VEDOVELLI, (*née* DEL CASTILLO,) a citizen of the Republic of France, and a resident of Paris, France, have invented a new and useful Improvement in and Relating to Electrical Resistances, which improvement is fully set forth in the following specification.

Electrical resistances are more and more generally employed in electrical work at the present time. A resistance is generally constituted by a wire through which the current is passed. The electrical energy is transformed into caloric energy and then dispersed by conductivity and radiation. Electrical resistances have numerous applications—such, for example, as the starting of motors, regulating lamps, heating, &c. There is therefore the greatest possible interest in securing a simple economical but strong form of resistance.

This invention has for its object to form an electrical resistance presenting all the properties which have been enumerated.

In the accompanying drawings, illustrative of one embodiment of the invention, Figure 1 is a view of three insulating beads such as used in my invention, two being shown in front elevation and one in side elevation. Fig. 2 is a front elevation of a resistance fabric constructed according to my invention and embodying a continuous conductor. Fig. 3 is a front elevation of a resistance fabric of slightly different arrangement in which a number of conductors are employed. Fig. 4 shows two similar beads such as employed for insulating the side edges of the resistance fabric, one bead being shown in transverse section through one of the openings or bores and the other bead in front elevation. Fig. 5 is a front elevation of a modified form of resistance fabric, and Fig. 6 is a front elevation of a further modified form of resistance fabric constructed according to my invention.

Similar characters of reference indicate corresponding parts throughout the several views.

Beads or buttons 1, formed with two openings or bores, are employed. These beads are formed of insulating material of any suitable kind—such, for example, as glass, porcelain, or the like. A wire of suitable metal—such as German silver, iron, or the like—is threaded through a certain number of beads, such as the row 3, Fig. 2, half at the bottom and half at the top. When the width determined

upon has been reached, this wire is turned and threaded upon the opposite side, passing it alternately through the bottom holes, which have been left vacant in the beads of the upper row, and through the top holes of the new beads, which are used as occasion requires. The new beads are arranged in the intervals remaining vacant in the upper row. When the end of the side 4 is reached, Fig. 2, turning is again effected, and so on in succession, always with the same wire, which may thus be as long as desired. When finished, the whole presents the appearance of a large "Galle" chain, the links of which are the beads and the pins the conducting-wire, but with this difference, that the pins or axes as a whole form a continuous conductor. So far the conductor has been assumed to be in one piece; but it is equally possible to effect each threading upon a separate wire, as shown in Fig. 2, and in this case such connections as are considered desirable may be made between the extremities 6, 7, 8, 9, 10, 11, 12, 13, and so on. These wires may be connected up in parallel for electromotive force, and so on, according to requirements. In connecting, for example, by a connection 6 8, 9 11, 10 12 a continuous conductor will be obtained between 7 and 13. It will be understood, therefore, from what has been stated that with suitable beads well-selected and strong wires, resistance elements as large as desired may be formed, corresponding to any given resistance and to a given dissipation of watts. A fabric or web forming a perfect resistance unit is thereby constituted.

It will of course be understood that it is possible to make the beads of any suitable form adapted for the purpose in view. For example, it will be noted that the fabric or sheet is perfectly protected except at the edges and that if the beads adjoin the conductor cannot be touched. This feature is of the greatest importance in the construction of rheostats, as it obviates accidental and dangerous derivations of current. For the edges a special bead may be employed, which is provided with a slit. In this slit the turns, such as 3 and 4, may be laid. This bead may advantageously present the form illustrated in Fig. 4; but it will of course be understood that any appropriate form may be selected.

It is by way of example only that the employment of beads with two holes only has hitherto been referred to; but ordinary beads with one hole or beads of this kind specially

made may be used, as shown in Fig. 5. The purpose of the two kinds of beads or buttons will be readily apparent. Those with one hole serve exclusively to cover the wire. Those with two holes also serve to establish mechanical connection between one row and the next. Finally, by an extension of the idea, but without departing from the principle of the invention, beads with more than two holes may be employed. Three or any desired number of holes may be used. Fig. 6 gives an example of fabric made with beads presenting three holes; but I do not wish to confine myself to this example, as any number of other arrangements might be devised. The holes, for example, need not be in the same plane, so that two distinct planes for the wires may be formed.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A resistance unit comprising a sheet of insulating-buttons, and an electrical conductor running therethrough.
2. A resistance web comprising insulating-buttons, and an electrical conductor engaging the same to bind said buttons together.
3. A resistance unit comprising a plurality of rows of insulating-buttons, and a continuous electrical conductor running back and forth through said buttons.
4. A resistance unit comprising a plurality of rows of insulating-buttons, and an electrical conductor engaging said buttons to maintain a predetermined arrangement of said rows.
5. An electrical resistance element compris-

ing parallel conductors, and insulating-beads provided with a plurality of bores engaging said conductors and forming therewith a continuous fabric.

6. An electrical resistance element comprising parallel conductor portions, and insulating-beads having a plurality of bores engaging said portions and forming therewith a continuous fabric.

7. An electrical resistance element comprising parallel conductor portions, and insulating-beads having bores engaging a plurality of said conductor portions, some of the beads on each conductor portion engaging the portion adjacent thereto at one side thereof, while others engage the adjacent portion at the opposite side.

8. An electrical resistance element, comprising parallel conductor portions, and insulating-beads provided with a plurality of bores engaging said conductor portions and forming therewith a continuous fabric, said beads being arranged in staggered relation to each other.

9. An electrical resistance element, comprising a single conductor having parallel portions and bent ends, insulating-beads engaging said parallel portions, forming in connection therewith a resistance fabric, and insulating edge beads engaging the bent end portions of said conductor.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses

ELISE VEDOVELLI.

Witnesses:

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HANSON C. COXE.