UNITED STATES PATENT OFFICE.

EMILE VERBEKE, OF BRUSSELS, BELGIUM.

METALLIC MANTLE FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 625,993, dated May 30, 1899.

Application filed February 4, 1899. Serial No. 704,562. (No model.)

To all whom it may concern:

Be it known that I, EMILE VERBEKE, manufacturer, a citizen of Belgium, residing at 39 Rue James Watt, Brussels, in the Kingdom of Belgium, have invented a certain new and useful Metallic Mantle for Gas-Burners, of which the following is a clear specification.

This invention relates to the manufacture of a metallic mantle which when fitted upon a suitable Bunsen burner, on which it fulfils the function of a grate, can produce incandescence. Many attempts have been made to produce such a mantle; but the incandescence obtained with them has not been perfect or complete, owing either to the melting-point of the metal or alloy employed or else to the composition used being unsuitable for the desired end.

The mantles forming the subject of this invention have a determined composition, depending on the lighting for which they have to be used.

Different metals described in many books are known to be capable of producing a more or less perfect incandescence, but have never been used, nobody having succeeded in manufacturing a commercial mantle, as it was impossible to obtain alloys of the desired composition for the manufacture of the mantles.

The following are the metals used for the manufacture of mantles according to this invention: platinum, iridium, rhodium, and palladium. It is well known that these metals become incandescent when introduced into a Bunsen flame.

What I claim as novel is the composition of the wires of the metallic threads used for weaving the mantles, each metal being assigned its especial part in the preparation of the alloys, according to the consistence and malleability to be given to the mantles. Therefore I claim the two following compositions for the manufacture of mantles, which must not be submitted to a pressure of any gas exceeding one hundred millimeters: A. Platinum, eighty-eight per cent.; iridium, ten per cent.; rhodium, two per cent. B. Platinum, ninety per cent.; iridium, five per cent.; rhodium, two per cent.; palladium, three per cent. Although it is preferred to use these exact proportions, any one or more of these metals may vary to the proportion to the amount of five per cent.

Manufacturing.—The alloys A and B are treated separately and from each a wire is drawn to the average diameter of one-twentieth of one millimeter. The mantle is then woven from these wires with a mesh corresponding to No. 60 of French weavers. The weaving is effected as follows: The wires or threads made of the alloy A serve to form the warp-threads of the mantle—that is to say, the threads beginning at the top and terminating at the bottom of the mantle. The wires B serve to weave the weft—that is to say, the threads going around the mantle.

As regards mantles for gas under pressure, whether it be compressed gas or gas with an artificial air-current, only one alloy is employed and the thickness of the wires is modified. The composition of this alloy is as follows: platinum, eighty-five per cent.; iridium, twelve per cent.; rhodium, three per cent. These metals are melted together and wires drawn from the alloy; this formed to a thickness of about one-tenth of a millimeter, the same alloy being used for weaving the warp or the weft. The size of the meshes corresponds to No. 60 of French weavers.

The mantles are placed directly on a Bunsen burner, forming the subject of a separate patent, and give a perfect incandescence throughout the whole of their surface.

The mantles do not require any support and may be of any desired shape—such, for instance, as cylindrical or conical or any intermediate form—and may be employed for giving light as well as heat.

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

1. A mantle for gas-burners formed of woven or intermeshed metallic wires, the wires constituting the warp-threads being formed of an alloy of platinum, iridium and rhodium and those forming the weft-threads of an alloy of platinum, iridium, rhodium and palladium, substantially as and in the manner specified.

2. A mantle for gas-burners formed of woven or intermeshed metallic wires said

wires being formed of an alloy of platinum, iridium and rhodium, substantially as and in the manner specified.

3. As a new article of manufacture, mantles for gas-burners composed of wires formed of alloys of platinum, iridium, rhodium and palladium, substantially in the proportions specified.

In testimony that I claim the foregoing I have hereto set my hand this 21st day of January, 1899.

EMILE VERBEKE.

Witnesses:
P. POHLE,
GREGORY PHELAN.