No. 887,057. PATENTED MAY 12, 1908.

L. BAUDENDISTLE.

ASSAY FURNACE.

APPLICATION FILED JULY 23, 1907.

2 SHEETS—SHEET 1.

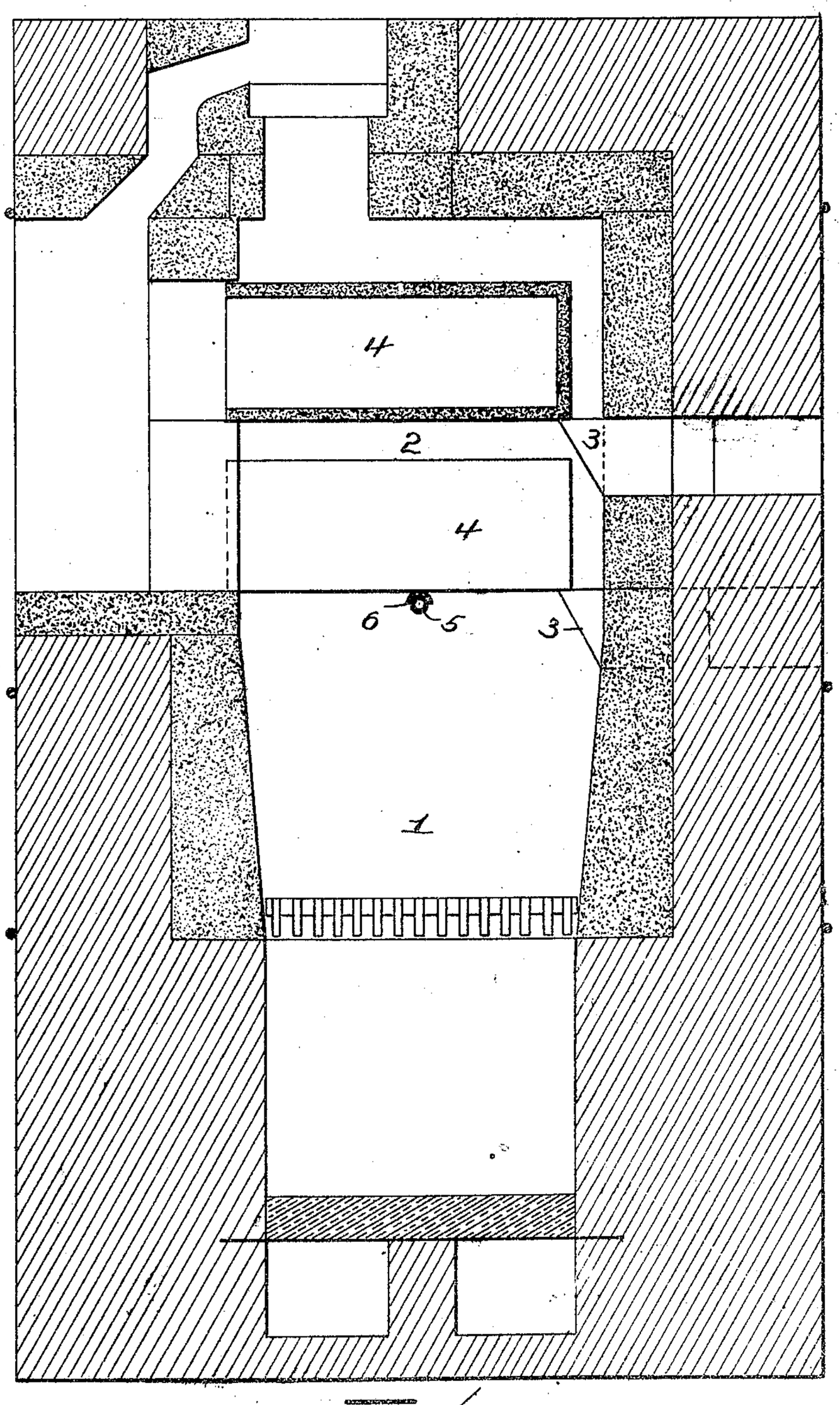

Fig. 1.

WITNESSES
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2 SHEETS—SHEET 2.

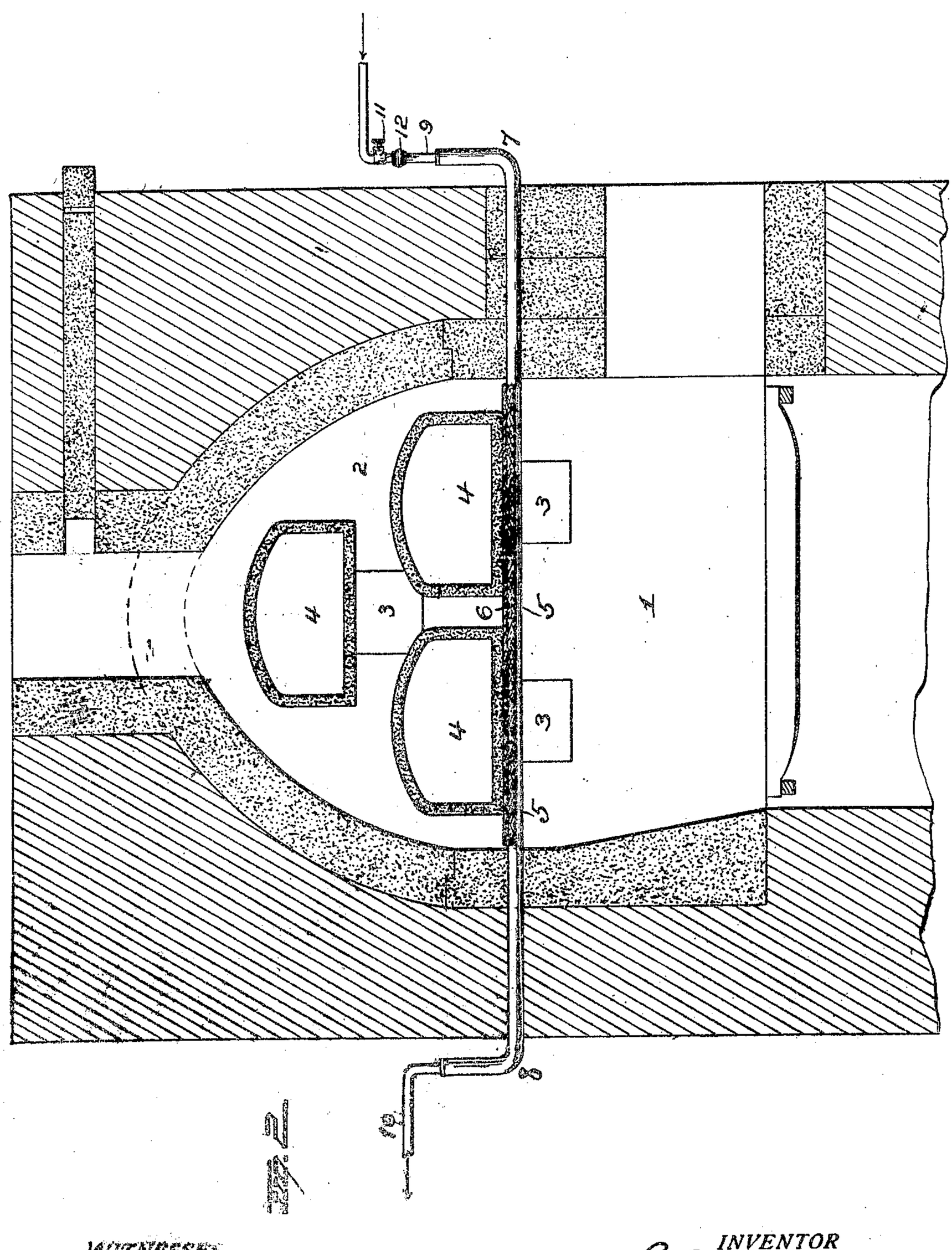

Fig. 2.

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UNITED STATES PATENT OFFICE.

LAFAYETTE BAUDENDISTLE, OF DENVER, COLORADO.

ASSAY-FURNACE.

No. 887,057. Specification of Letters Patent. Patented May 12, 1908.

Application filed July 23, 1907. Serial No. 385,113.

To all whom it may concern:

Be it known that I, LAFAYETTE BAUDENDISTLE, of Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Assay-Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in assay furnaces and more particularly to means for supporting the muffles.

Heretofore, the muffles (which are usually about 18 inches in length) have been supported within the furnace, at their ends only. These muffles are subjected, by the weight of their contents, to considerable strain, and these muffles being made of fire-clay and subjected to an intense heat are liable to give way or to become distorted by warping.

The object of my invention is to avoid the defects and inconveniences as well as the expense incident thereto, which have been heretofore encountered with muffles in assay furnaces and to provide means which will withstand the intense heat in such a furnace, for properly and effectually supporting the muffles and which will result in enhancing the longevity of the muffles.

With this object in view the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of an assay furnace showing the application of my improvements thereto, and Fig. 2 is a sectional view taken at right angles to Fig. 1.

1 represents an assay furnace, in the oven or muffle chamber 2 of which supporting ledges 3 are located. Each of these ledges supports one end of a muffle 4, the other end of said muffle being supported by a ledge or shoulder formed in the wall of the furnace. A support for a muffle, as above described, has as hereinbefore stated, been found deficient because the intermediate portion of the muffle has been unsustained and the weight of its contents together with the intense heat to which it may be subjected, has resulted in the distortion of the muffle and the consequent incapacity for future use. To avoid such a result, I provide an intermediate supporting means for the muffles which are arranged in alinement with each other,—said means consisting of a stout pipe 5 supported near its ends in the walls of the furnace 1 and disposed under the intermediate portions of the muffles 4. Between this pipe and the bottoms of the muffles, asbestos or fire-tile 6 is located and forms a covering for the upper portion of said pipe. This pipe may be from three-quarter to one inch in diameter and approximately five feet in length, according to the size of the furnace in which it is employed, and its ends (out-side the furnace walls) are bent upwardly as shown at 7, 8. A pipe 9 of smaller diameter than that of the pipe 5 communicates with the upper end of the upturned portion 7 of said pipe 5 and is connected with any suitable source of water supply. A pipe 10, also of smaller diameter than that of the pipe 5, communicates with the upturned end 8 of the latter and may be extended to any suitable point of discharge, or exhaust. The pipe 9 is provided with any suitable valve 11 for controlling the passage of water through the pipe 5.

The upturned ends of the pipe 5 will cause the latter to be constantly filled with water and a continuous flow of water, under moderate pressure, will be maintained in said pipe 5. The flow of water through the pipe 5 and the proper temperature of said pipe can be maintained by means of the valve 11. The pipe or support 5 for the muffles will thus be prevented from deterioration by the intense heat within the furnace and the asbestos or fire-tiled covering 6 will prevent the undue cooling of the bottoms of the muffles.

When the circulation of water is very slow on account of small water supply, so as to cause the water to become very hot and probably form some steam, I may provide a check valve 12 in the pipe 9 to prevent steam coming back in the supply pipe.

By actual experience, it has been demonstrated that with my improvements, the life of muffles has been extended from two or three days to two weeks and sometimes longer.

Slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope and hence I do not wish to restrict myself to the precise details herein set forth.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is,—

1. In an assay furnace, the combination with means for supporting the ends of a

muffle, of a pipe constituting a support for the muffle between the ends thereof, a supply pipe for a cooling medium communicating with the supporting pipe, a controlling valve in the supply pipe, and a check valve in the supply pipe between the controlling valve and the supporting pipe.

2. In an assay furnace, the combination with means for supporting the ends of a muffle, of a pipe constituting a support for the muffle intermediate of the ends thereof, a supply pipe for a cooling medium smaller in diameter than the supporting pipe and communicating therewith, a controlling valve in said supply pipe, and an exhaust pipe smaller in diameter than the supporting pipe and communicating with the latter.

3. In an assay furnace, the combination with means for supporting the ends of the muffle, of a pipe constituting a support for the muffle between the ends thereof, said pipe mounted in the walls of the furnace and provided at its respective ends with upturned portions, a valved supply pipe for a cooling medium communicating with one of said upturned portions of the supporting pipe, and an exhaust pipe communicating with the other upturned portion of the supporting pipe.

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

LAFAYETTE BAUDENDISTLE.

Witnesses:

C. W. JORDAN,

D. B. KINKAID.