

(No Model.)

W. H. WILLIAMS.
TEST FOR MANUFACTURING LITHARGE.

No. 586,783.

Patented July 20, 1897.

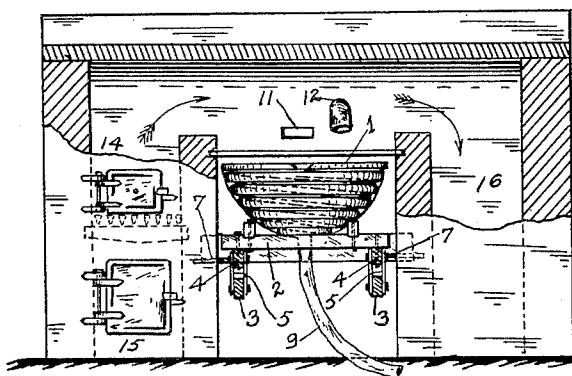


FIG. 1.

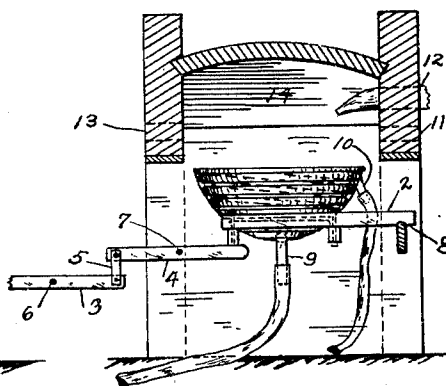


FIG. 2.

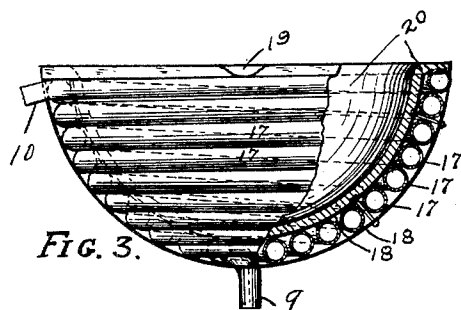


FIG. 3.



FIG. 5.

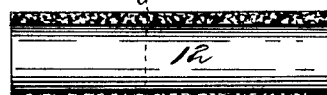


FIG. 6.

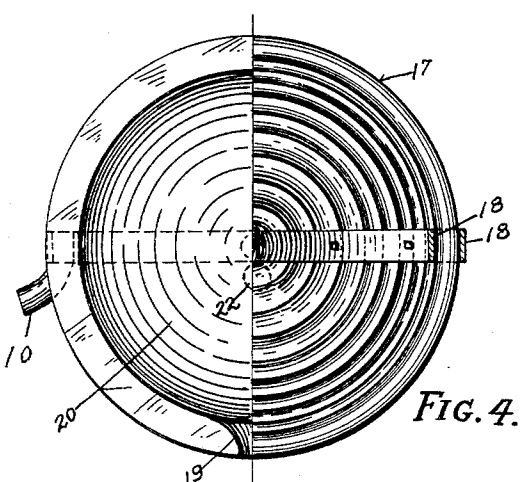


FIG. 4.



FIG. 7.



FIG. 8.

WITNESSES:

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TEST FOR MANUFACTURING LITHARGE.

SPECIFICATION forming part of Letters Patent No. 586,783, dated July 20, 1897.

Application filed March 10, 1897. Serial No. 626,740. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WILLIAMS, a citizen of the United States, residing at Sharpsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Tests for Manufacturing Litharge and Refining Metals; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in tests for the manufacture of litharge, in which—

Figure 1 is a side elevation and part section of the furnace, showing test in position with levers and frame for supporting it. Fig. 2 is a cross-section showing the same. Fig. 3 is a part section and side elevation of the test. Fig. 4 is a part section and plan of the test. Fig. 5 is a longitudinal sectional view of the inner end of the twyer by which the metal is supplied to the test. Fig. 6 is a similar view of the outer end thereof. Figs. 7 and 8 are cross-sections on the lines xx and yy , respectively, of Figs. 5 and 6.

In Fig. 1, 1 is the coil test. 2 is the frame for supporting it.

3 and 4 are levers for raising or lowering test; 5, toggles by which levers are connected.

6 7 8 are points where levers and frame are fulcrumed.

9 is the inlet, and 10 the outlet, or vice versa, of the coil test; 11, the aperture in furnace through which metal is admitted to the test; 12, the twyers for distributing the blast over the surface of the metal in the test.

13 is a peep-hole; 14, the firing-chamber; 15, the ash-pit; 16, the flue to smoke-stack; 17, the pipes in which the water circulates; 18, the bands by which the coils are bound together.

19 is a lip or gutter through which the litharge flows; 20, the lining.

That others may fully understand my invention I will briefly state that heretofore in the manufacture of litharge and the refin-

ing of metals the metal is placed upon an oval slightly-excavated disk or test, made by beating pulverized bone-ash, formed into a paste with water, into a mold the sides of which consist of an elliptical band of iron and the bottom of strips of sheet-iron placed at short distances apart.

The test is of such a size as exactly to fit an opening in the floor of a reverberatory furnace, where it is placed and adjusted to the level of the floor. On one side of the test the fireplace is situated, and exactly opposite the chimney, while at one extremity of it a blast-pipe is placed and at the other a vertical hole is made, communicating with a gutter leading from the test. The furnace is now lighted and shortly afterward the blast is turned on. The lead fuses and combines with oxygen, and the resulting oxid melting also forms a stratum which swims on the surface and which is driven by the blast along the gutter and through the vertical hole into a receptacle below. This test is expensive and of short duration.

In my invention I propose to construct a pipe-test coiled as shown in accompanying drawings or any other suitable shape, banded together by bands and lined with asbestos cement or any other suitable material, the coil to have an inlet and an outlet by which a current of water or other suitable liquid, air, or gas of a required temperature may be circulated, thus preventing the pipe and lining from becoming too hot and the metals and litharge from penetrating the test, the test to be supported by framework, of wood or other suitable material, and adjusted by one or more levers for the purpose of lowering and raising the test. I also provide one or more twyers made of asbestos or asbestos cement, or iron or other material coated with asbestos. In using asbestos for twyers I have twyers that will outlast any other, and the most desirable shape is as shown, protruding through the furnace with the flattened end pointing over the metal in the test 1.

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

1. The combination with the furnace, of the pivoted frame located therein, the test consisting of the spirally-coiled pipe for the

circulation of liquid or fluid, the fireproof
twyers and the means for raising and lower-
ing said test, substantially as shown and de-
scribed.

- 5 2. The combination with the furnace, of
the pivoted frame located therein, the test
consisting of the spirally-coiled pipe, the lin-
ing therefor, the fireproof twyer-pipe for sup-
plying air to the test, the fireproof twyer con-

nected with said pipe and the pivoted levers 10
and toggle-joint for raising and lowering the
test, substantially as shown and described.

In testimony whereof I affix my signature
in presence of two witnesses.

WILLIAM H. WILLIAMS.

Witnesses:

ALEX. A. PATTERSON,
H. J. LEVIS.