P. F. MABILLE.
Kiln for Baking Lime, Plaster, &c.

No. 207,755. **Patented Sept. 3, 1878.**

Fig.1.

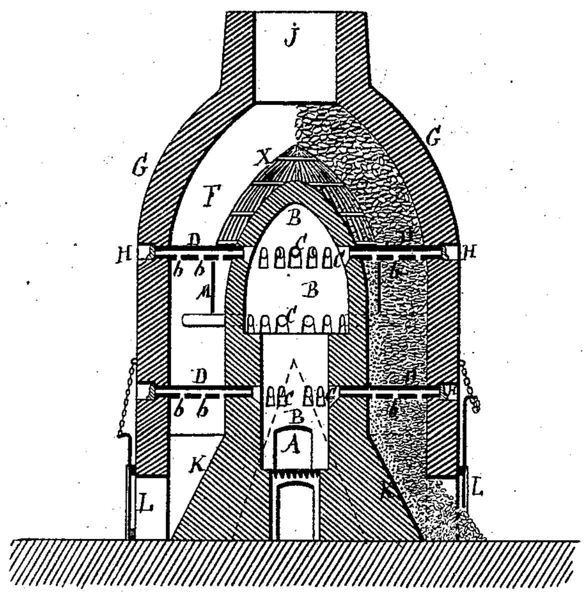
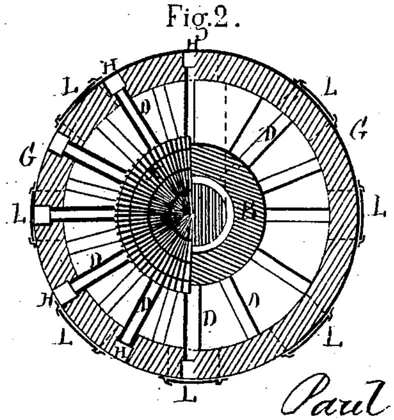


Fig.2.



Witnesses.

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PAUL F. MABILLE, OF PARIS, FRANCE.

IMPROVEMENT IN KILNS FOR BAKING LIME, PLASTER, &c.

Specification forming part of Letters Patent No. **207,755**, dated September 3, 1878; application filed April 19, 1878.

To all whom it may concern:

Be it known that I, PAUL FRANÇOIS MABILLE, of Paris, France, have invented an Improved Kiln for Baking Plaster and other Materials, of which the following is a specification:

This invention comprises several important conditions which hitherto have been but very imperfectly fulfilled in the baking of plaster: first, the complete separation of the dust ordinarily mingled with the crude or raw material at the moment of charging; second, the equal spreading of the heat from the furnace within the chamber; third, the perfectly regular descent of the plaster to be treated in the chamber of the kiln, so as to expose it to the progressive action of the heat; fourth, the facility of treating, simultaneously with the plaster, the extraneous matters and dust which are mixed with it; and, fifth, the very easy control of the kiln during the whole time of baking.

The construction of the kiln will be readily understood on reference to the annexed drawings.

Figure 1 is a vertical section of the arrangement of kiln, and Fig. 2 is a horizontal section of the same.

The kiln is composed of a fire-place or furnace, A, placed at the lower part of a central chamber, B, the roof or crown of which is vaulted ovally and constructed of refractory bricks. This arrangement has the effect of forcing the products of combustion reflected from the vault to descend toward the furnace. At the interior of this chamber B, above the furnace, are arranged channels or outlets C C C, these being superposed in alternate order, and leading into pipes D for conducting the heat into an annular chamber, F, which surrounds the casing or wall of the inner chamber, B. These pipes D, which traverse the annular chamber, are arranged radially, and so that the pipes of the one series are in the spaces left between the pipes in the other series, so as to more equally spread the heat, (see Fig. 2,) and they debouch at their other ends into openings made for the purpose in the exterior wall, G, which openings are temporarily stopped with plugs of clay H, to cause the escaping heated gases to pass through a series of holes, *b*, into the annular chamber F, and thus into the midst of the baking mass.

The chamber F is made of ordinary bricks, and has also an ovally-vaulted roof terminating in an inverted funnel-shaped opening, J, serving for the charging of the crude plaster into the kiln. The plaster is raised to the upper part of the kiln by an endless chain of buckets or cups, which one after another discharge their contents direct into the furnace, or into vehicles which are movable upon rails supported on a platform. These vehicles, when required, can be emptied in the funnel-shaped opening J to feed the kiln. It is evident that in this manner several kilns can be supplied at the same time.

When the plaster has been thus brought to the kiln it is always largely mingled with dust, which, if allowed to fall into the furnace, would more or less become impregnated with moisture and cause a caking of the plaster, or, accumulating, the large particles would become embedded therein; and since dust is not a conductor of heat, it would follow that it would not burn sufficiently, and thus a diminution would be caused in the production. To obviate these disastrous results the dome of the chamber B is covered with a grating, X, of the same form, which is supported by the upper series of pipes, D. To the base of this grating X an iron partition, M, is attached, intended to conduct the dust and keep it separated from the larger particles while they are baking. Thus the dust, on arriving at the grating, passes through it and enters the space existing between the grate and the dome B, slides down the latter, and follows the conduit formed by the partition. Arrived at the level of the second series of pipes, the dust slides down the exterior partition of the chamber B until it reaches the inclined plane or slope K, when it mingles without injury with the baked plaster, the action of the heat upon which it has not hindered.

The baked plaster is taken out through, say, seven openings, L, closed when required by vertical sliding doors, and fastened by a chain or in other manner. An eighth door is provided for the fire-place.

Inclined planes K are formed at intervals around the kiln-chamber to direct the baked

plaster in its descent toward the openings L, from which it can be removed by hand or other convenient means.

The arrangement of this kiln is such that the descent of the material is gradual and very regular—that is to say, that as fast as the workman takes out a shovelful of baked plaster from the opening the weight of the mass above causes a gradual and regular descent of the whole baking mass.

It will, of course, be understood that the number of discharge-openings at the base of these kilns is variable so long as more than one is employed.

All kinds of combustible matter can be burned in this kiln.

I do not wish to be understood as broadly claiming a kiln for baking plaster, or any of the parts, except as hereinafter specified.

And having now described the nature of the said invention, and in what manner the same is to be constructed and used, I declare that I claim—

The combination of the furnace A, the chamber B, and the grating X, covering the dome of the chamber B, substantially as described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

P. MABILLE.

Witnesses:
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