UNITED STATES PATENT OFFICE.

THOMAS W. MINTON, OF STOKE-UPON-TRENT, ENGLAND.

IMPROVEMENT IN OVENS FOR FIRING POTTERY.

Specification forming part of Letters Patent No. **165,855**, dated July 20, 1875; application filed February 6, 1874.

To all whom it may concern:

Be it known that I, THOMAS WILLIAM MINTON, of Stoke-upon-Trent, in the county of Stafford, England, manufacturer, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in Ovens for Firing Pottery, Glass, and other substances; and I, the said THOMAS WILLIAM MINTON, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof—that is to say—

This invention has for its object to improve the construction of ovens for firing pottery, glass, and other substances.

In the ovens previously in use the fuel is burned in feeders or mouths disposed partly on the outer circumference of the oven, and partly under the walls of the same, by which arrangement the greatest portion of the heat radiating from the coke, and a portion, also, of that given off by the gases, generated by the coals, has no other effect than to heat the surrounding brick-work without any direct action on the ware to be baked. In the improved oven the old feeders or mouths are dispensed with, the combustion of the coals being entirely effected inside, or in the hold, of this oven, so that the heat from the coke or the gases has a more direct effect on the saggers containing the ware with which it comes in contact; thus a considerable reduction in the quantity of fuel required to fire the ordinary ovens is realized. Besides, by the addition of a second chamber on the top of the oven, use can be made of the heat that might escape from the lower part, for hardening the printed ware, or firing those articles of pottery for which a low heat is necessary, avoiding the necessity of surrounding the ovens by a second building called "hovel." In this way an economy of space and money is effected.

In the drawings annexed, Figure 1 is a vertical section, and Fig. 2 a sectional plan, of an oven constructed according to my invention. Figs. 3, 4, and 5 show some of the parts separately.

a a are the fire-bars; *b b*, the doors through which the fuel is supplied; *c c*, the fire places or bags in which the combustion takes place, and in the lower front of which some loose bricks *d* are placed to prevent the coals falling in ash-pits *e e*. When the oven is firing, the flame produced in these bags is directed, by means of four or five open saggers, *f f*, toward the upper part of the oven, and, as there is no opening in the vault through which the heat might escape, the flame is compelled to travel in a downward direction to reach the floor *g g*, where a number of openings, *h h*, are disposed. These openings give access to several horizontal flues, *i i*, and from these gases reach the upper chamber in passing through the upright flues *j j*, existing in the thickness of the walls. From the second chamber the final escape of the gases is effected by the outer chimney *k*. At various heights above the doors used for the supply of coals the small openings *m m m* have for object to introduce the quantity of air necessary to effect a perfect combustion, and they are regulated according to the quality of fuel. The cooling-flue L, which communicates outside, is kept shut all the time the oven is firing, and is open afterward to assist in cooling. The damper M in the center of the vault is also removed after the firing, for the same object. Access to the upper chamber is provided by the door N, and the brackets *o o o* built in the inner circumference are intended for placing the printed ware, which has to be hardened. Another object of this upper chamber is to collect the gases from the upright flues *j j*, so that the outer chimney acting on all of them at the same time equalizes the draft of those which might be backward or in advance. By reducing the diameter of this outer chimney the flame may be brought into the second chamber, or by enlarging it a complete combustion may be effected in the lower part of the oven, so that carbonic acid only will be found in the upper chamber.

If, in constructing an oven, it is desired to suppress this upper chamber, the upright flues *j j* are omitted, and the gases passing in the flues *i i* are directed to a central opening similar to L enlarged, from which they are sent to an outside chimney, which will act for several of these ovens.

Having thus described the nature of my

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Sash-Holder.

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Fig. 1

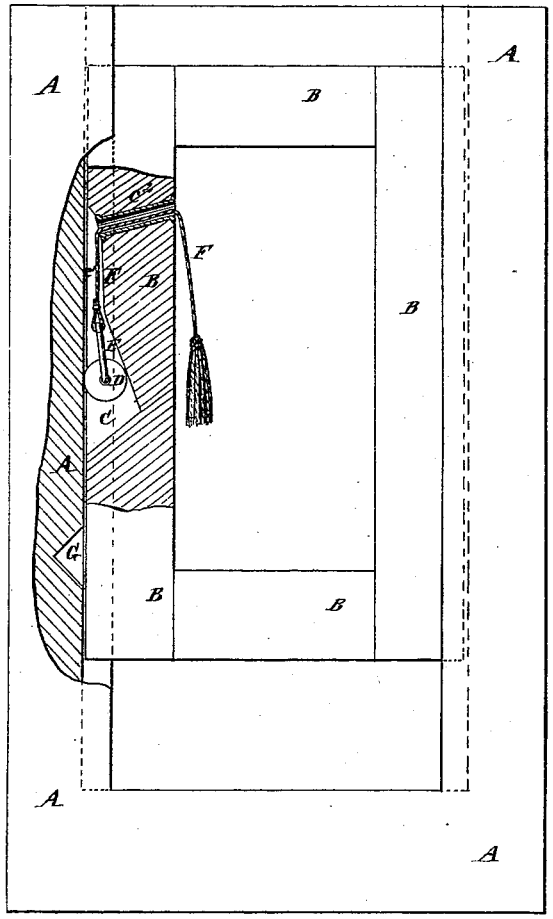

Fig. 2

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