

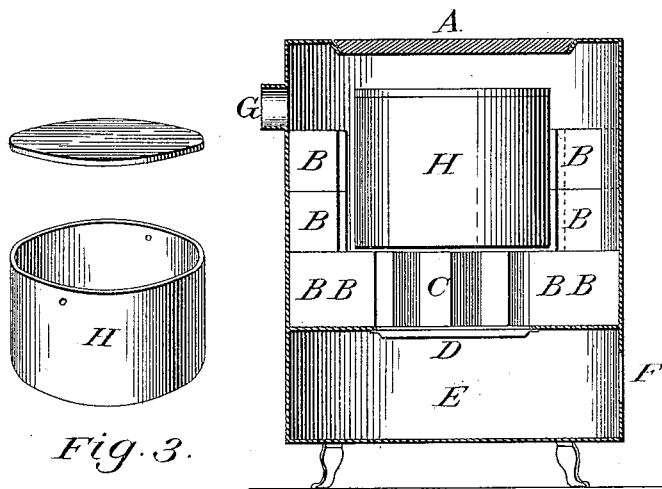
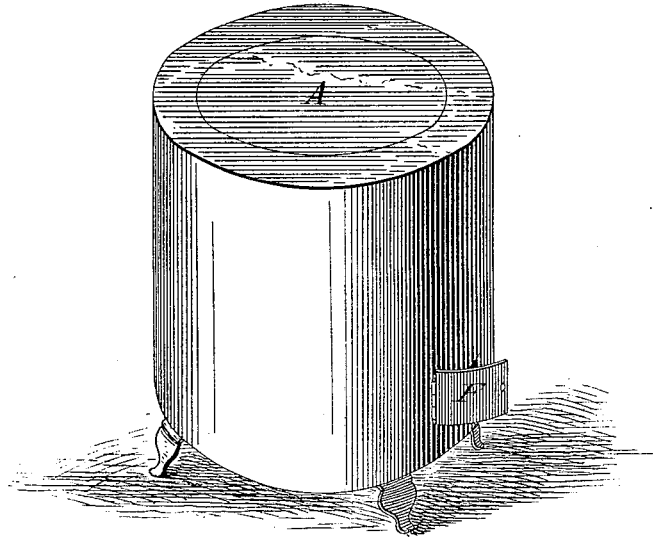
(No Model.)

E. M. FORD.

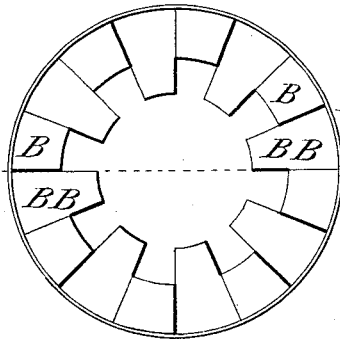
PORTABLE FURNACE TO FACILITATE THE MEANS OF FIRING DECORATED  
CHINA, GLASS, &c.

No. 262,391.

*Fig. 1.* Patented Aug. 8. 1882.



*Fig. 4.*



*Fig. 2.*

Witnesses:

*Edward St. John*

*M. Louise Ford*

Inventor:

*Ellen Maria Ford*

# UNITED STATES PATENT OFFICE.

ELLEN M. FORD, OF PORT RICHMOND, NEW YORK.

PORTABLE FURNACE TO FACILITATE THE MEANS OF FIRING DECORATED CHINA, GLASS, &c.

SPECIFICATION forming part of Letters Patent No. 262,391, dated August 8, 1882.

Application filed October 9, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, ELLEN MARIA FORD, of Port Richmond, in the county of Richmond and State of New York, have invented a new and useful portable furnace to facilitate the means of firing decorated china, glass, earthenware, pottery, or other articles on which mineral or vitrifiable paints are used; also for firing such articles in any process of their manufacture, whether decorated or not, a description of which is set forth in the following specification and accompanying drawings.

Until within about two years there has been no suitable means by which persons engaged in the art of decorating china, glass, &c., or any process of manufacturing pottery, &c., could themselves perform the operation of firing, it having been necessary for them to send the articles to large kilns or furnaces, which are principally located in large cities, not easily accessible by any but near residents, and which, from the nature of their construction and use, can only fire the articles in large lots and at stated times. About two years ago I invented a box or pot of fire-clay or other suitable material, (a patent for which, No. 215,815, was granted me May 27, 1879,) in which such articles could be fired by the artist by placing the said box, inclosing the articles to be fired, in an ordinary stove or furnace, such as in use for various domestic and heating purposes. The object of my present invention is to provide a suitable portable stove or furnace in which the aforesaid box or pot can be used, mainly with intent to facilitate the use of said box by persons who cannot conveniently use the ordinary stoves for it, especially its larger sizes, and at the same time providing for combinations of both box and furnace in such forms as the needs of various persons require.

In the drawings, Figure 1 is a perspective view of the furnace; Fig. 2, a plan of the arrangement of the lower course of fire-bricks in the furnace; Fig. 3, the box or pot and cover, and Fig. 4 a sectional side view of the furnace and pot combined.

The furnace may be made of iron, or fire-clay, or brick, or a combination of all, or of any material of which heating apparatus can be made. It may be of various designs, plain or ornamental. It may be adapted to the usual domestic purposes—such as heating irons or

wash-boilers, or cooking, or to serve as an ordinary heater—in connection with its special use, as indicated above; or it may be constructed solely with a view to its use for firing china, &c. It may be made to burn any kind of fuel; may have a closed top, with pipe, &c., or an open top, for use out-of-doors, as in case of burning charcoal.

The box or pot to contain the articles to be fired may be movable, or permanently attached to or connected with the furnace. It may also be made square, or of any other shape, with the opening on the side instead of the top, the furnace being constructed accordingly for access to it—for instance, with a door in front.

As made for use in a residence and adapted to domestic uses, the furnace is described by reference-letters, as follows, the same letters indicating same parts in all the figures.

A is the movable lid; B B B B, lining of fire bricks; BB BB, same, alternate bricks in this course being thicker than those above and between them, thus extending inward to serve as a support for movable pot H, and leaving spaces between them, as shown in plan, Fig. 2, for the fire to pass up and around the pot. The same purpose may be served by constructing any other kind of support—as an iron grating from side to side—the bricks being of uniform size and thickness. C is the fire-chamber; D, grate, which may be made movable by slide, hinge, or other convenient arrangement; E, ash-chamber; F, opening for same and draft; G, opening for pipe; H, pot for china, &c., in position for firing.

The arrangement as described in drawings is used substantially as follows: The fire having been kindled, the pot (covered) containing the articles to be fired is placed on the stove to heat gradually, and when partially heated is placed inside the stove on the supports BB BB, and the top of the stove is closed. After the pot has remained there from forty to sixty minutes, so that it is partly red-hot, the fire is dropped into the ash-chamber and removed from the stove, leaving the latter and the pot to cool together, thus allowing the ware to cool as gradually as it was heated, the whole process occupying about two or three hours ordinarily. After becoming cool the pot may be taken from the stove and the ware removed.

The above-described process would be va-

ried somewhat if the furnace were constructed differently—as, for instance, when made with an open top; or when the box or pot is permanently attached to the furnace the ware would be placed in position before kindling the fire, and the fire might be allowed to die out without removing it from the grate, &c. The management of the fire would differ also according as coal, wood, charcoal, coke, or other fuel should be used, and the general process could be varied as experience would tend to improvement in details of effecting the most satisfactory firing of the ware.

The advantages of this invention are: a great saving of time, the process being simple and easily learned, and the same results obtained as from the large kilns, (in many cases better;) an artist is able to proceed at once with the firing when the ware is ready, accomplishing promptly successive paintings and firings of the same ware, whereas without such means he would be obliged to await transportation to and from an established kiln, where firings usually are limited to a given day per week or month; the saving of expenses of packing, transportation, and the fee at the kiln; the avoidance of risk of breakage or other damage in transportation; the greater certainty of the firing being adapted to the special requirements of the ware, depending on quality of the ware, and, when decorated, nature of the different colors used, &c., no one being so competent a judge of all such conditions as the artist, whereas in a large kiln containing a variety of work of different artists the firer must adapt the process to the majority, often to the serious detriment of the minority, resulting frequently in complete destruction of some valuable article, the loss for both ware and labor falling on the artist. Further, this invention is successfully used for firing in all the processes of “under-glaze” painting, in

which case the glaze is added to the ware over the decorations by an additional firing—a process which has heretofore been restricted entirely to kilns of a special plan of management; and, finally, this furnace supplies the needs of very many persons (especially those living in remote parts of the country) who do not possess ranges or other heaters adapted to use of the box or pot mentioned; and it is no small advantage to an artist anywhere to have the means of acquiring practice in firing, thus being able to accomplish the entire work of decorating from beginning to end, and increasing his own abilities and talents by the additional knowledge which such experience affords.

I am aware that portable furnaces are already made for use by assayers, enamellers, jewelers, dentists, &c., but only to contain muffles, and the shapes and sizes of even the largest muffles are such as to be entirely unsuitable for service as an inclosure for firing pottery; and to the best of my knowledge and belief there has been no article known prior to my invention of this furnace and combination which could supply the want, though the demand for such an article is large and increasing.

I claim as my invention—

1. A portable furnace or stove in or with which a pot or box or other suitable inclosure may be constructed or placed to contain articles of pottery, porcelain, glass, &c., for being fired at any time during the process of manufacture or decoration.

2. The combination of the said furnace or stove with the said pot or box or other inclosure, for the purpose described.

EILEN MARIA FORD.

Witnesses:

EDWARD ST. JOHN,  
M. LOUISE FORD.