

No. 720,594.

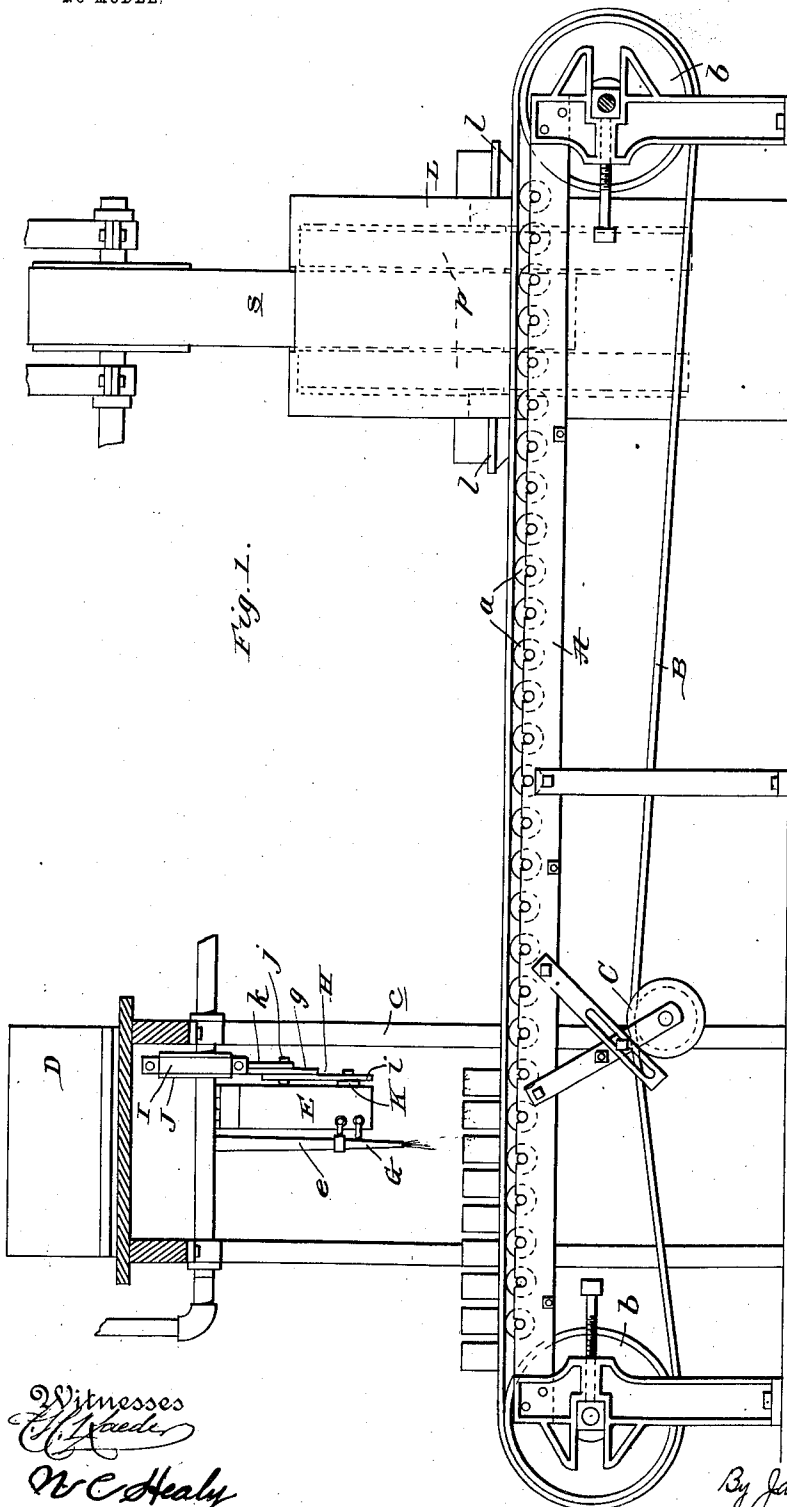
PATENTED FEB. 17, 1903

F. MACARTHY.
MACHINE FOR ENAMELING CLAY ARTICLES.

APPLICATION FILED SEPT. 23, 1902.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses
W. C. Healy

Inventor
Fred Macarthy
By *Jas. J. Shedy*
Attorney

No. 720,594.

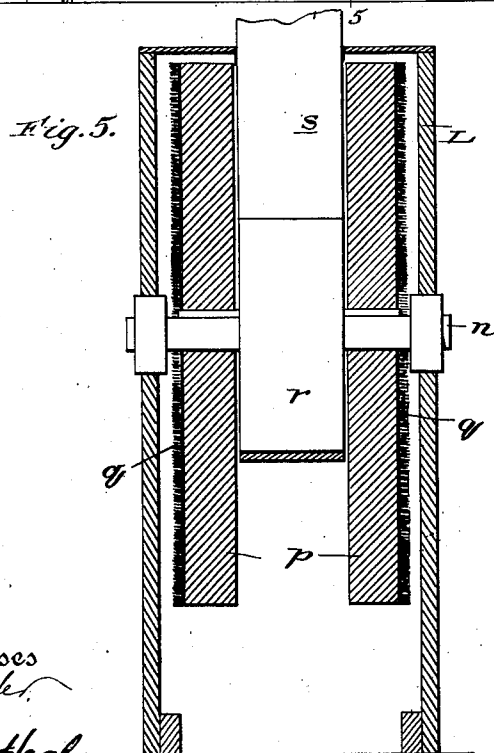
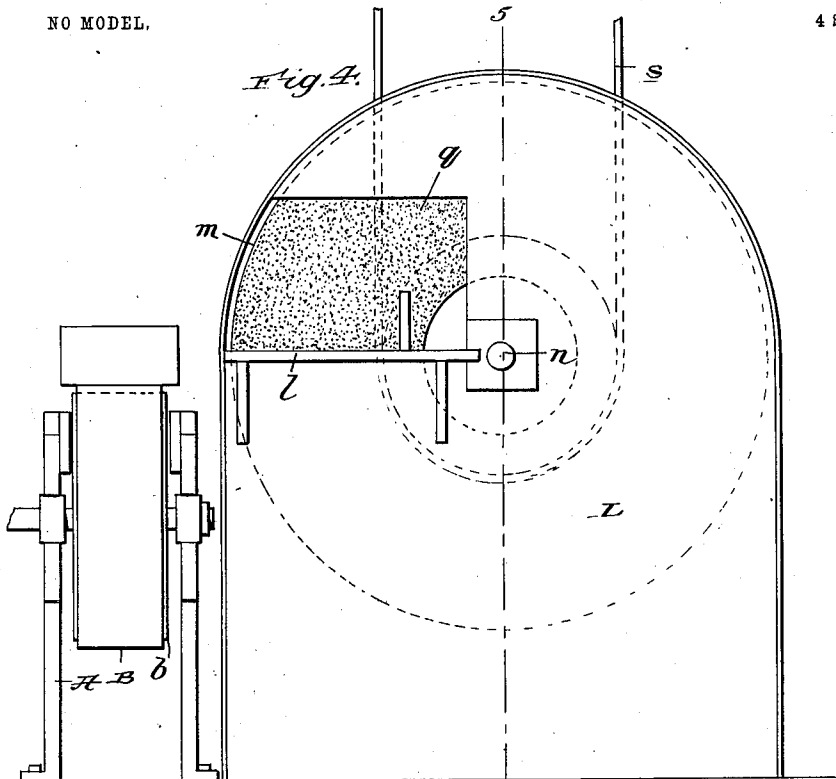
PATENTED FEB. 17, 1903.

F. MACARTHY.
MACHINE FOR ENAMELING CLAY ARTICLES.

APPLICATION FILED SEPT. 23, 1902.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses
A. J. Fisher
W. C. Healy

Inventor
Fred Macarthy
By *Geo. J. Sheehy*
Attorney

No. 720,594.

PATENTED FEB. 17, 1903.

F. MACARTHY.

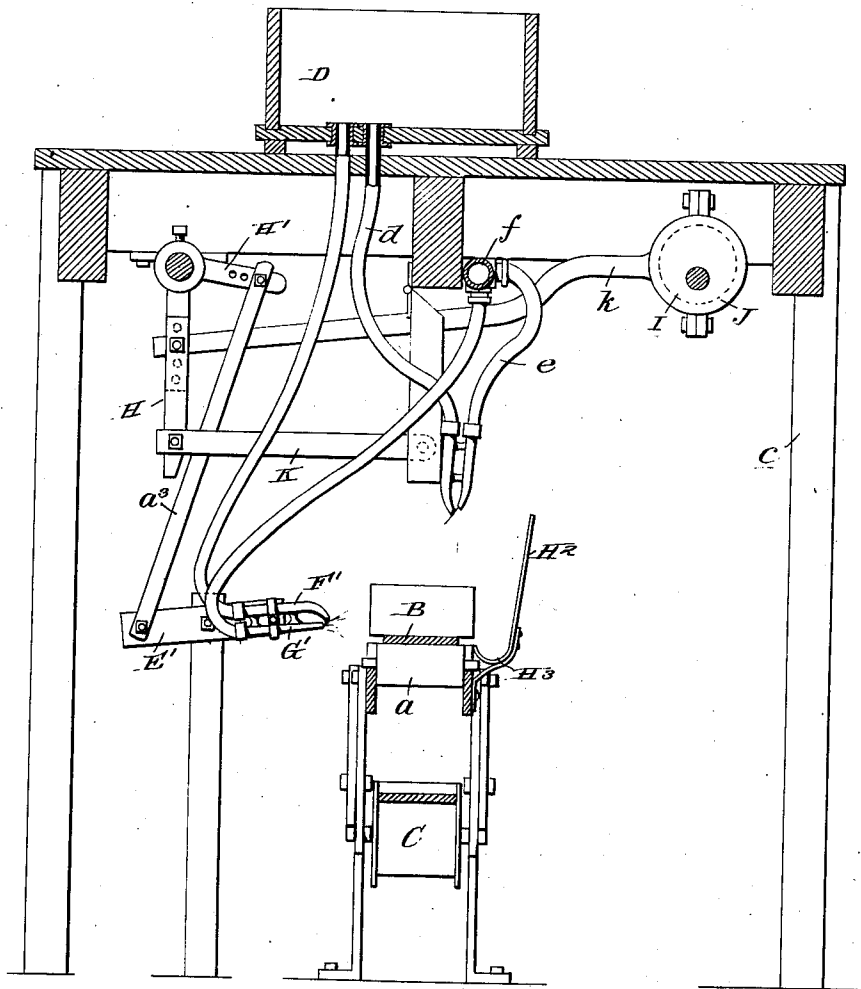
MACHINE FOR ENAMELING CLAY ARTICLES.

APPLICATION FILED SEPT. 23, 1902.

NO MODEL.

4 SHEETS—SHEET 4.

и т.д.



Witnesses
E. J. Gardner
N. C. Healy

Inventor
Fred Macarthy
By Jas J Shucky Attorney

UNITED STATES PATENT OFFICE.

FRED MACARTHY, OF SAYREVILLE, NEW JERSEY, ASSIGNOR TO EDWIN A. FISHER, OF SAYREVILLE, NEW JERSEY.

MACHINE FOR ENAMELING CLAY ARTICLES.

SPECIFICATION forming part of Letters Patent No. 720,594, dated February 17, 1903.

Application filed September 23, 1902. Serial No. 124,528. (No model.)

To all whom it may concern:

Be it known that I, FRED MACARTHY, a subject of the King of Great Britain, residing at Sayreville, in the county of Middlesex and State of New Jersey, have invented new and useful Improvements in Machines for Enameling Clay Articles, of which the following is a specification.

My invention relates to the manufacture of enameled or glazed bricks, tiles, and other clay articles; and it has for one of its objects to provide a machine calculated to thoroughly cover with "slip"—i. e., enamel or glaze—the face or faces of clay articles intended to be exposed in walls or other places in such manner that waste of the slip is precluded and the necessity of a workman placing his hands in the slip or getting some of the same on his hands is obviated.

Another object of the invention is to provide a machine calculated to expeditiously remove enamel or glaze from those surfaces of an enameled brick or other article which are not intended to be enameled and this in such manner that the necessity of a workman inhaling enamel-dust, as when the superfluous enamel is removed with a hand-brush, is done away with, and when the bricks or other articles are glazed or enameled before burning a highly-finished appearance is given to the same, and at the same time the cost of production is materially reduced.

The invention will be fully understood from the following description and claims when taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of the machine constituting the preferred embodiment of my invention; Fig. 2, an enlarged transverse section illustrating the portion of my improved machine which has for its purpose the application of slip to bricks or other clay articles; Fig. 3, a transverse section taken at right angles to Fig. 2 and in the plane indicated by the broken line 3 3 of said figure; Fig. 4, a side elevation of that portion of the machine designed to remove superfluous enamel or glaze from the bricks or other clay articles; Fig. 5, a transverse section taken in the plane indicated by the broken line 5 5 of Fig. 4, and Fig. 6 a view of a modification.

Referring by letter to the said drawings, and more particularly to Figs. 1 to 3, wherein is shown the means for applying slip to the clay articles, A is a frame having antifriction-rollers *a* at its upper side; B, an endless carrier arranged on pulleys *b* in the frame and having its upper stretch arranged on and supported by the rollers *a*; C, a tightener which I prefer to use for taking up undue slack of and keeping the carrier properly taut; D, a tank supported by a suitable frame *c* in a plane above the upper stretch of the carrier and designed to contain the liquid slip or other substance to be applied to the clay articles; E, an arm connected in a hinged manner to the frame *c* and arranged to swing transversely above the upper stretch of carrier B; F, a metallic or other suitable nozzle attached to the arm E and connected through the medium of a flexible tube *d* with the tank or slip-receptacle D; G, a metallic or other suitable nozzle fixed to the nozzle F, preferably with its discharge disposed at right angles or approximate right angles to that of said nozzle F, and connected through the medium of a flexible tube *e* with a pipe *f*, designed to be connected with a source of steam, compressed air, or other fluid-pressure supply (not shown) or with an overhead source of water-supply, (also not shown;) H, a swinging arm comprising, by preference, an upper section *g*, pivoted on the frame *c* and having a plurality of apertures *h*, a lower section *i*, and a bolt *j*, connecting the said sections; I, an eccentric designed to be rotated through any suitable driving connection; J, an eccentric-strap containing the eccentric I and having an arm *k*, connected to the swinging arm H, preferably through the medium of the bolt *j*, and K a strap or bar interposed between and connecting the lower section *i* of the arm H and the arm E.

In the practical operation of the portion of my improved machine thus far described in detail the carrier B and the eccentric I are driven by any suitable means, and slip and fluid-pressure or a proper head of water are supplied to the nozzle F and the nozzle G, respectively. The bricks, tiles, or other articles to be enameled are placed on the upper stretch of the carrier, and as they pass be-

neath the nozzles F G said nozzles, swinging transversely to and fro, will spray slip on their upper sides or faces and properly cover the same and this without considerable waste of slip and also without the necessity of the operator's hands coming in direct contact with the slip, which in many cases contains as components carbonate of lead, oxid of lead, minium or red lead, and other more or less poisonous substances deleterious to the health of the operator. Motion is transmitted from the cam I to the arm E through the strap J and its arm k, the arm H, and the strap or bar K, and it will be seen that by increasing and diminishing the length of the arm H the traverse of the arm E and nozzles F G may be increased and diminished—*i. e.*, regulated—to adapt the nozzles to properly spray and cover with slip the upper sides of clay articles of various lengths. After the upper sides or faces of the clay articles are covered with slip said articles are carried forwardly on the carrier until they reach points opposite the shelves l of that portion of the machine designed to remove superfluous enamel or glaze from the articles, when they are taken off the carrier by attendants and held on the shelves in the manner hereinafter described.

In the preferred embodiment of my invention the portion of the machine designed to remove enamel from those surfaces of clay articles not intended to be enameled comprises a casing L, Figs. 4 and 5, disposed at right angles to the carrier B and having the shelves l on its side walls and also having openings m in said side walls immediately above the shelves, a transverse shaft n, journaled in suitable bearings in the casing, disks p, fixed on said shaft and having wire or other suitable brushes q on their outer sides, and a pulley r, fixed on the shaft between the disks p and designed for the engagement of a belt s, which extends through the top of the casing.

When the bricks or other clay articles are held on the shelves l, so as to present their surfaces which are not intended to be enameled to the brushing or abrasive action of the revolving brushes q, it will be observed that any enamel that may have reached said surfaces will be expeditiously removed, also that the dust raised incident to the removal of the superfluous enamel will be retained in the casing, and the liability of the attendants breathing such dust will be reduced to a minimum. It will further be observed that when the bricks, tiles, or other articles are enameled before burning and the superfluous enamel is removed by the means described a finished appearance will be given to the articles, and at the same time the cost of producing the same is materially reduced.

The means which I have shown and described for effecting the application of slip to bricks and other clay articles is adapted to cover with slip the upper sides or faces only of the articles. This in some cases will not be sufficient, as it is sometimes required to

enameled the heads or ends as well as the faces of the bricks or other articles. I therefore contemplate employing in addition to the pair of nozzles F G one, two, or more pairs of extra nozzles, the said extra nozzles being arranged in an approximately horizontal position and being connected through comparatively long tubes with the tank D and the pipe f.

In Fig. 6 of the drawings I have illustrated a modified construction which comprises all of the elements of the construction shown in Fig. 2 and in addition a pair of horizontal or approximately horizontal nozzles F' G', connected by flexible tubes with the tank D and the pipe f, respectively, a vertically-rocking support E', to which the nozzles are attached, an arm H', fixed and disposed at an angle to the arm H, a pitman α', interposed between the rocking support and the arm H' and connected to the latter in an adjustable manner, so that the throw of the nozzles F' G' may be regulated, and a shield H², connected to the opposite side of the frame A with reference to the nozzles F' G' and terminating at its lower end in a gutter H³. The operation of this modified construction is similar to that of the construction shown in Fig. 2, with the exception that slip is applied to the upper sides or faces of the bricks or other clay articles and also to the heads or ends thereof. The nozzles F' G' are oscillated in a vertical plane through the medium of the mechanism described with a view of assuring the proper covering with slip of the heads or ends of the bricks or other articles on the carrier B. The shield H² has for its purpose to prevent scattering of the slip discharged by the nozzles F' and G'.

While I have described the pipe f as being designed to be connected with a source of steam, compressed air, or other fluid-pressure supply or with an overhead source of water-supply, I prefer to connect said pipe with a source of compressed-air supply and to use compressed air to assist in the application of the slip.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention as claimed.

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

1. In a machine of the class described, the combination of a work-support, a frame, "slip-applying" means, an oscillating device carrying the said "slip-applying" means, an eccentric, and an operating connection intermediate of said eccentric and oscillating device, comprising means whereby the throw or

traverse of the swinging device may be increased or diminished.

2. In a machine of the character described, a work-support, "slip-applying" means movable above the support, "slip-applying" means movable at the side of the support, a shield arranged at the opposite side of the support with reference to the latter "slip-applying" means, an eccentric, and operating connections between the eccentric and the two "slip-applying" means.

3. In a machine of the character described, a work-support, "slip-applying" means movable above the support, "slip-applying" means movable at the side of the support, a shield arranged at the opposite side of the support with reference to the latter "slip-applying" means, and terminating at its lower end in a gutter, an eccentric, and operating connections between the eccentric and the two slip-applying means.

4. In a machine of the character described, the combination of a frame, a work-support, an oscillating device connected to the frame, a "slip-tank" arranged on the frame above the work-support, nozzles carried by the oscillating device, a flexible tube between one of said nozzles and the "slip-tank," a flexible tube connected to the other nozzle, and adapted to be connected with a source of fluid-pressure supply, a swinging arm connected to the frame, a connection between said arm and the oscillating device, an eccentric, and an operating connection between said eccentric and the swinging arm.

5. In a machine of the character described, the combination of a work-support, a frame, a swinging arm depending from the frame above the work-support, "slip-applying" means carried by said arm, an eccentric, and an operating connection intermediate of said eccentric and swinging arm, comprising means whereby the throw or traverse of the swinging arm may be increased or diminished.

6. In a machine of the character described, the combination of a frame, a work-support, a swinging arm connected in a hinged manner to and depending from the frame, above the work-support, a "slip-receptacle," vertical nozzles attached to and movable with the swinging arm, a flexible conduit between one nozzle and the "slip-receptacle," a flexible conduit connected with the other nozzle, and adapted to be connected with a source of water or fluid-pressure supply, a rocking support, horizontal nozzles carried thereby, a flexible conduit between one of the horizontal nozzles and the "slip-receptacle," a flexible conduit connected with the other horizontal nozzle, and adapted to be connected with a source of water or fluid-pressure supply, an eccentric, and operating connections between the eccentric and the swinging arm and rocking support.

7. A machine of the character described, comprising a receptacle for "slips," a work-support disposed below said receptacle, a nozzle disposed above the work-support and connected with the "slip-receptacle," a nozzle disposed at the side of the work-support, and also connected with the receptacle, and nozzles arranged to coact with those first mentioned, and adapted to be connected with a source of fluid-pressure supply.

8. In a machine of the character described, a work-support, "slip-applying" means movable above the support, "slip-applying" means movable at the side of the support, an eccentric, and operating connections between the eccentric and the two "slip-applying" means.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRED MACARTHY.

Witnesses:

FREDERICK M. TOWNLEY,
CLARENCE H. CRENNING.