May 15, 1928.

1,669,587

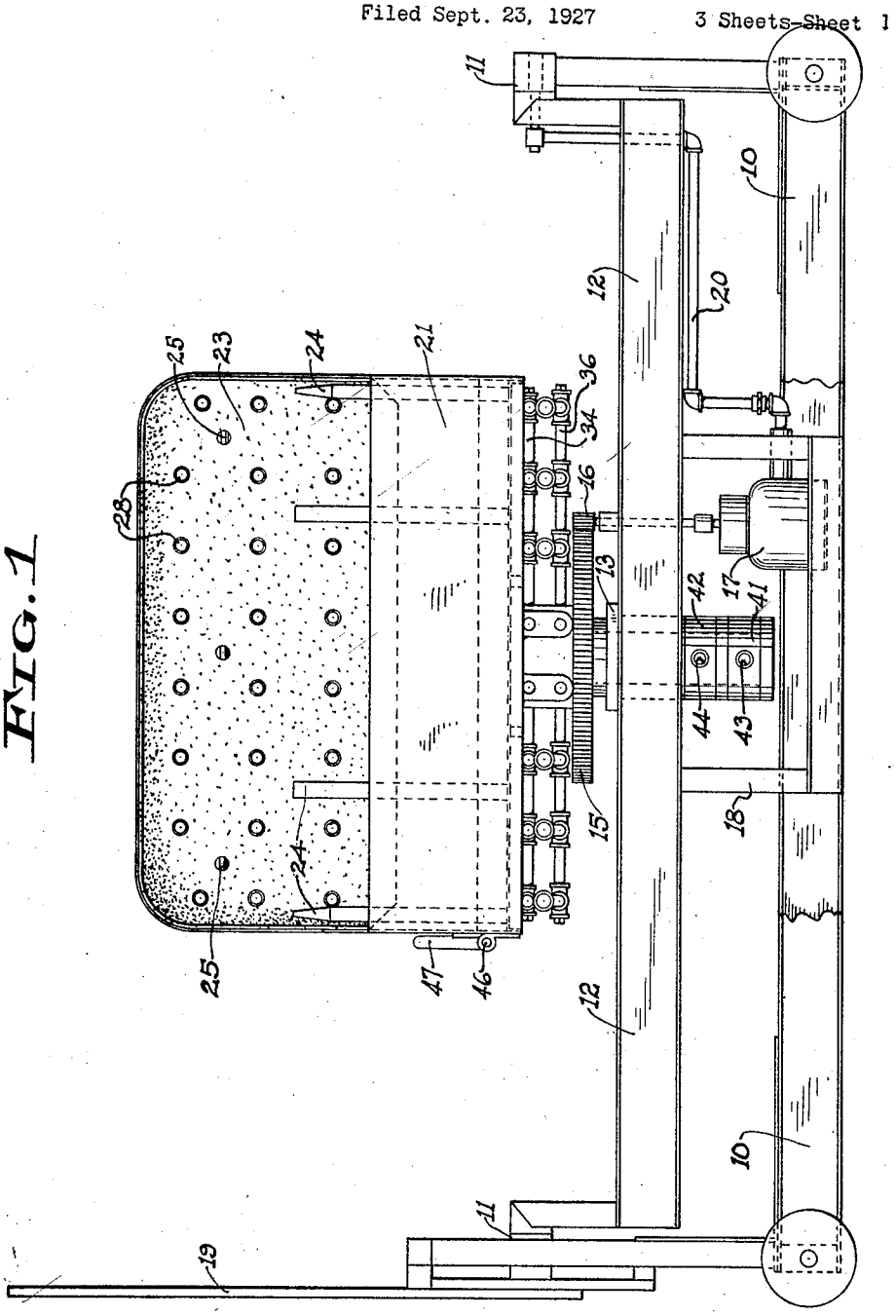
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ENAMELING CRADLE

Filed Sept. 23, 1927

3 Sheets-Sheet 1

FIG. 1



WITNESSES

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ENAMELING CRADLE

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FIG. 2

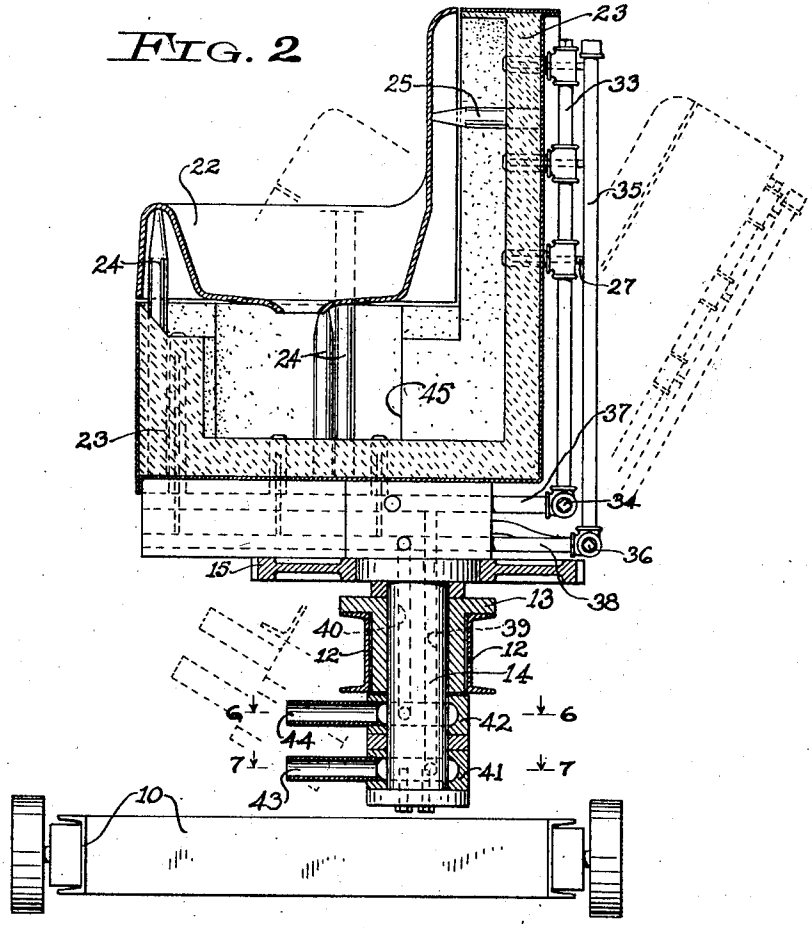


FIG. 6

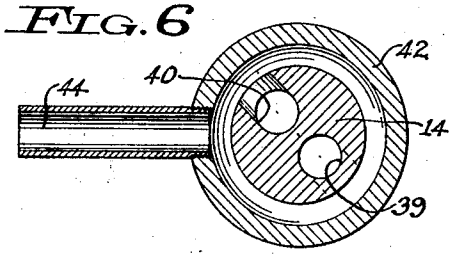
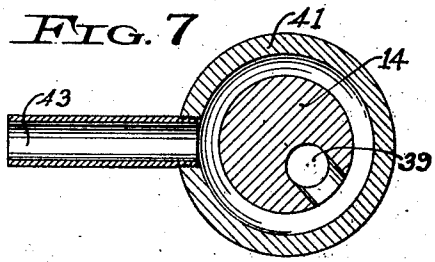


FIG. 7



WITNESSES

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Filed Sept. 23, 1927 3 Sheets-Sheet 3

FIG. 3

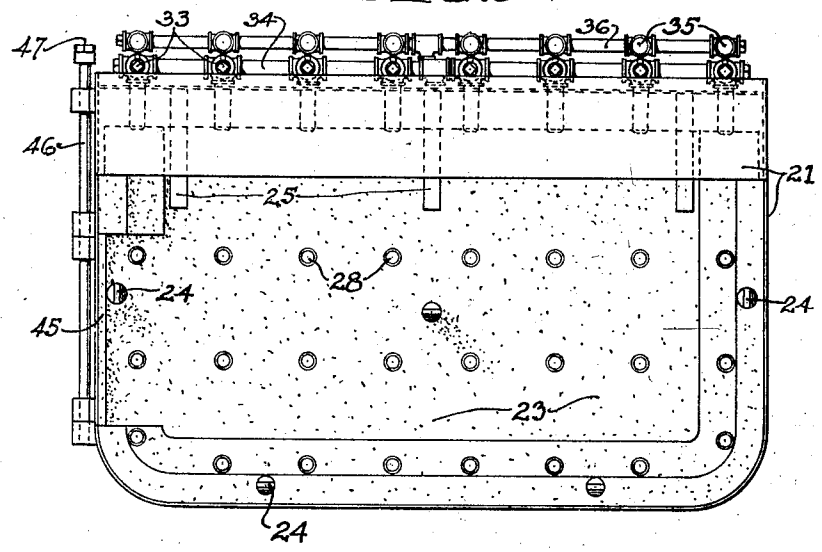


FIG. 4

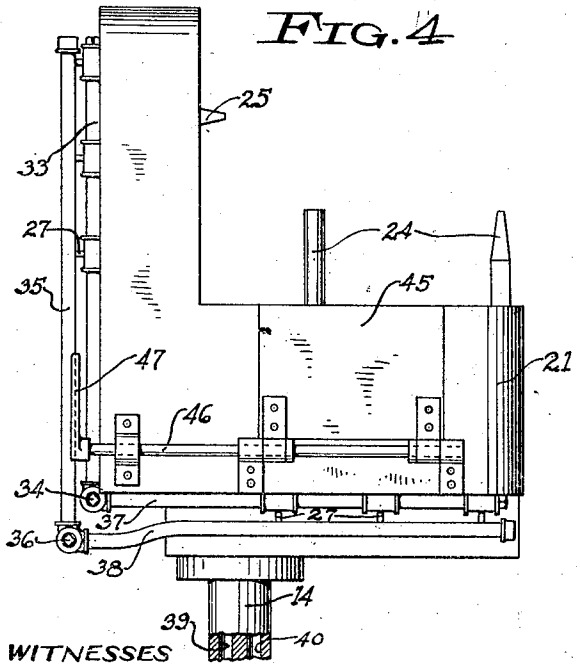
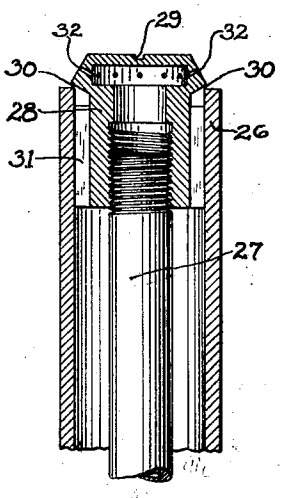


FIG. 5



WITNESSES

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UNITED STATES PATENT OFFICE.

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ENAMELING CRADLE.

Application filed September 23, 1927. Serial No. 221,537.

This invention relates to enameling cradles for use in enameling plumbing ware and the like, such as porcelain lined sinks, lavatories and bathtubs, and has for its object to provide a cradle having means for heating the articles so as to avoid the necessity for returning it to the oven during the operation of applying the enamel.

Another object of the invention is to provide such a heated cradle capable of the tilting and turning movements that are necessary for applying the enamel.

Another object of the invention is to provide such a heated cradle capable of supporting the article without contacting with the surface to be enameled and of facilitating the placing and removal of the article.

With the above and other objects in view the invention consists in the enameling cradle as herein claimed, its parts and combinations of parts and all equivalents.

Referring to the accompanying drawings in which like characters of reference indicate the same parts in different views,

Fig. 1 is a side view of an enameling cradle constructed in accordance with the present invention;

Fig. 2 is a transverse sectional view thereof showing a tilted position in dotted lines;

Fig. 3 is a plan view of the cradle;

Fig. 4 is an end view thereof;

Fig. 5 is a detail sectional view of one of the burners;

Fig. 6 is a sectional view on the plane of line 6—6 of Fig. 2 showing the swivel connection for the gas inlet; and

Fig. 7 is a similar view on the plane of line 7—7 of Fig. 2 showing the swivel connection for the air inlet.

In these drawings 10 indicates a cradle truck mounted on wheels or rollers to be capable of movement. At its ends are trunnion bearings 11 for the offset trunnions of an underslung cradle frame 12 which has a pivot bearing 13 in which the pivot post 14 of a cradle is mounted to rotate or oscillate. In order to receive such movements the pivot post 14 is provided with a gear wheel 15 meshing with a pinion 16 on the shaft of an electric motor 17 which is carried by a subframe 18 attached to the cradle frame 12 and swinging therewith. A hand lever 19 is secured to one of the trunnions of the cradle frame 12 for tilting it, and a wiring conduit 20 for the motor is taken out through the other trunnion.

Mounted on the enlarged head of pivot post 14 is the cradle member 21 consisting of a shell or casing shaped to fit the article to be enameled, in this instance a sink 22. The casing or shell is lined with a heavy heat insulating lining 23 of firebrick or other suitable material and in its horizontal part it is provided with vertical supporting pins 24 to engage within the rim of the sink and beneath the bottom of the sink, while in its vertical upstanding back part it is provided with horizontal supporting pins 25 to engage the sink back. When the sink is supported in this manner, its edges match with the edges of the cradle casing 21 but are slightly spaced therefrom to permit the discharge of the burnt gases.

Embedded in the heat insulating lining 23 at the bottom and at the back of the cradle are burners, one of which is shown in detail in Fig. 5, consisting of an air tube 26 containing a central gas pipe 27 on the end of which is adjustably threaded a burner tip 28 having an enlarged hollow head with a conical neck portion adapted in the adjustments, effected by the turning of the tip by means of a tool slot 29 in its end, to vary the area of the air discharge port 30 between said head and the end of the air tube. While the burner tip has a working fit within the tube 26 its bearing surface is fluted to provide air passageways 31 around it leading to the circular air port and the hollow head has radiating inclined gas ports 32 to discharge gas into the current of air from the air port.

These burners are arranged in rows extending transversely across the cradle along the bottom and up the back and the air tubes 26 of the burners of each row are connected with an air pipe 33 extending across the bottom and up the back and joining with an air header 34 at the junction of the vertical section with the horizontal section. Each of the gas pipes 27 of a row of burners passes out through the air pipe coupling and connects with a gas pipe 35 corresponding with the air pipe 33 and joining with a gas header 36.

The air and gas headers 34 and 36 con-

nect with air and gas feed pipes 37 and 38 respectively, which lead from passageways 39 and 40 in the enlarged head of the pivot post 14, which passageways extend through said pivot post from points beneath the cradle frame 12. Air and gas under pressure are supplied to the passageways 39 and 40 respectively through hollow rings 41 and 42 loosely mounted on the pivot post 14 and suitably packed to permit the post to turn therein, and having nipples 43 and 44 for connection with flexible air and gas hose, not shown. The cradle may thus be turned or tilted without interfering with the air and gas connections for the burners.

At one end of the cradle the insulating lining is interrupted and an opening is formed in the casing which is controlled by a door 45 mounted upon a shaft 46 journalled in bearings on the casing and turned by a hand lever 47. When this door is opened the usual enameling fork for conveying the sink to and from the oven may be entered through the doorway for placing the sink in the cradle or removing it therefrom, the fork straddling the supporting pin 24 which stands in the doorway and lifting the sink so as to clear the supporting pins in these operations.

By means of this invention, heavy articles such as sinks, bathtubs, lavatories and the like may be brought to the desired temperature in the oven and then placed on the cradle to receive the enamel which is deposited thereon in powdered form and will be kept at the required enamel fusing temperature throughout the enameling operation, making it unnecessary to return it to the oven a number of times during the process of enameling, as heretofore, and effecting a great saving in time and labor.

The turning and tilting of the cradle are necessary to permit the enamel to be deposited upon all exposed surfaces and are accomplished without interfering with the heating connections. By adjusting the burner tips, the desired proportions of air and gas may be obtained for proper heating at the various parts of the cradle according to the requirements of the article, so that all parts of the article are maintained at the enameling temperature throughout the enameling operation, and the entire enameling operation is completed without interruption for reheating as heretofore.

What I claim as new and desire to secure by Letters Patent is:

1. An enameling cradle, comprising a cradle member, a heat insulating lining therefor, and means for supplying heat within the cradle during the enameling operation.

2. An enameling cradle, comprising a cradle member, supports therein for holding the article to be enameled, a heat insulating lining for the cradle, and means for supplying heat within the cradle to heat the article during the enameling operation.

3. An enameling cradle, comprising a cradle member shaped to fit the article to be enameled, supports within the cradle for holding the article in close fitting but spaced relation from the edges of the cradle, and means for heating the cradle during the enameling operation.

4. An enameling cradle, comprising a turning and tilting cradle member shaped to fit the article to be enameled, supporting pins within the cradle member for holding the article in spaced relation with the edges of the cradle member, a heat insulating lining for the cradle member, and burners within the cradle member for heating the article during the enameling operation.

5. An enameling cradle for sinks and the like having roll rims, comprising a cradle member shaped to fit the edges of the article, supporting pins in the cradle member for engaging the article beneath the roll rims and supporting it in spaced relation with the edges of the cradle member, a heat insulating lining for the cradle member, and heating means within the cradle member for heating the article during the enameling operation.

6. An enameling cradle for enameling sinks and the like having roll rims, comprising a cradle member mounted to turn and tilt, supporting pins in the cradle member engaging beneath the rims of the article for holding it in place during the movement of the cradle member, and means within the cradle member for heating the article during the enameling operation.

7. An enameling cradle for sinks and the like having roll rims, a cradle member mounted to turn and tilt and shaped to fit the article to be enameled, supporting pins in the cradle member engaging beneath the roll rims of the article to support the article in spaced relation from the edges of the cradle member, a heat insulating lining for the cradle member, and gas burners embedded in the lining for heating the article during the enameling operation.

8. An enameling cradle for sinks and the like, comprising a cradle member having walls adapted to fit the edges of the article to be enameled, supporting means within the cradle for supporting the article, means for heating the cradle member during the enameling operation, and a door in the wall of the cradle member for admitting an enameling fork to lift the article from the supporting means.

9. An enameling cradle for sinks and the like having roll rims, comprising a turning and tilting cradle member having walls to fit the edges of the article to be enameled, supporting pins within the cradle member

for engaging beneath the rim of the article and for supporting the article in the various positions of the cradle member, means for heating the cradle member during the enameling operation, and a door in the wall of the cradle member for admitting an enameling fork for lifting the article off of the supporting pins.

10. An enameling cradle, comprising a cradle member, means for supporting an article therein, a heat insulating lining for the cradle member, and gas burners embedded in the lining comprising air tubes, gas pipes within the air tubes, and burner tips threaded on the ends of the gas pipes and having nozzle heads adjustable with relation to the ends of the air tubes for varying the air flow.

11. An enameling cradle, comprising a cradle member for supporting an article to be enameled, a heat insulating lining therefor and gas burners embedded in the heat insulated lining for heating the article during the enameling operation and comprising air tubes, gas pipes therein, and burner tips fitting within the air tubes and adjustably threaded on the gas pipes and fluted to provide air passageways between them and the air tubes, said burner tips having hollow heads with inclined gas ports and conical neck portions forming air ports with the ends of the tubes varied by the adjustments of the burner tips.

12. An enameling cradle for sinks and the like comprising a turning and tilting cradle member shaped to fit the sink rim and the sink back, supporting pins in the cradle member engaging beneath the rim of the sink and against the back of the sink for holding the edges of the sink in spaced relation with the edges of the cradle member and for supporting the sink in the different positions of the cradle member, rows of gas burners extending across the bottom and up the back of the cradle member, each gas burner having an air tube and a gas pipe, air supply pipes connected with the air tubes of each row of burners, gas supply pipes connected with the gas pipes of each row of burners, air and gas headers connecting the air and gas supply pipes respectively, a suitably mounted pivot post supporting the cradle member and having passageways connected with said air and gas headers, hollow rings loosely mounted on the pivot post and communicating with said air and gas passageways, and hose connections on said hollow rings.

13. An enameling cradle, comprising a support, a cradle frame having offset trunnions by which it is mounted in the support and capable of being tilted, a pivot post having a bearing in the cradle frame, a gear wheel mounted on the pivot post, an electric motor on the cradle frame, a pinion on the motor shaft engaging the gear wheel, a cradle member mounted on the pivot post and adapted to support the article to be enameled, gas burners within the cradle member having air and gas connections extending through the pivot post, and swivelled hose couplings on the pivot post for the air and gas connections for permitting of the turning and tilting movement of the cradle member without interfering with the air and gas supply.

In testimony whereof, I affix my signature.

ANTON FRANK BROTZ.