F. E. GOLDSMITH.

MACHINE FOR COATING TILES, &c.

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1,035,959. Patented Aug. 20, 1912.

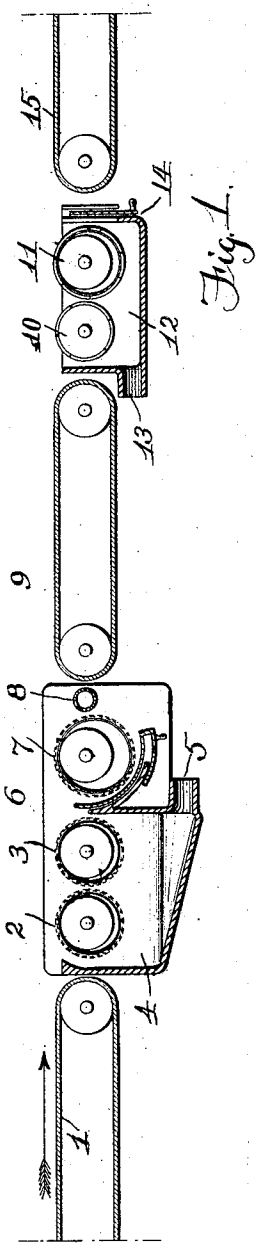

Fig. 1.

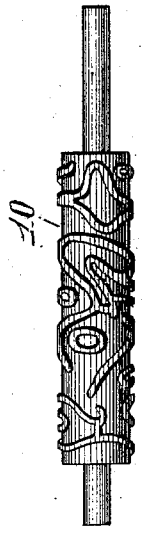

Fig. 2.

Frederick E. Goldsmith

Inventor

Witnesses:
Elmer R. Shipley,
M. S. Belden.

by James W. See
Attorney

UNITED STATES PATENT OFFICE.

FREDERICK E. GOLDSMITH, OF HAMILTON, OHIO, ASSIGNOR TO THE CERAMIC MACHINERY COMPANY, OF HAMILTON, OHIO.

MACHINE FOR COATING TILES, &c.

1,035,959. Specification of Letters Patent. Patented Aug. 20, 1912.

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To all whom it may concern:

Be it known that I, FREDERICK E. GOLDSMITH, a citizen of the United States, residing at Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Machines for Coating Tiles, &c., of which the following is a specification.

This invention, pertaining to machines for coating tiles &c. will be readily understood from the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a vertical longitudinal section of a machine exemplifying my invention: and Fig. 2 a side elevation of an exemplifying mottling roll.

The tile, carried forward by receiving apron 1, is carried onward by rolls 2 and 3, which rolls are more or less immersed in coating material kept at a constant level in vat 4 by being fed thereinto through supply opening 5, the level of the coating material in the vat being determined by the height of adjustable end-gate 6. The tile then moves forward over roll 7, supplied with coating material from the overflow at end-gate 6 and then passes over air-blast pipe 8 to intermediate apron 9, of sufficient length to satisfactorily dry the tile, the tile then passing over mottling rolls 10 and 11 more or less immersed in coating material in tank 12 supplied through opening 13 and having its level regulated by end-gate 14, the tile then being carried away on discharge apron 15.

All the rolls and aprons are to be continuously driven by power. The rolls illustrated, with the exception of roll 10, are of the known loose eccentric foraminous shell type, in which type of rolls the coating material carried up in the first lunar space between the core and the shell becomes expressed upwardly through the shell and delivered to the lower face of the tile, the second space of the given roll being comparatively free from the coating material. Rolls acting in this manner are true coating rolls inasmuch as it is their function to receive coating material and deliver it to the tile.

Assuming rolls 2 and 3 to be acting as true coating rolls, roll 2 will deliver a coating of certain thickness to the tile, and to this will be added an additional thickness produced by roll 3, the two rolls thus being capable, in dealing with certain classes of coating material, of yielding a thicker coating than could otherwise be done with that material. When the coating rolls 2 and 3 act after the manner of true coating rolls, and regardless of whether there be one or more of these rolls, end-gate 6 will be comparatively low and the rolls in vat 4 be but partially immersed.

The coating produced by rolls 2 and 3, owing to the rather heavy character of the work done by them, is quite apt, with some characters of coating material, to leave the work more or less rough or pitted. Roll 7 acts as a finishing roll to cure defects. It is less liberally supplied with coating material than rolls 2 and 3 and its covering should be finer. As the rear corner of the tile leaves finishing roll 7 there may be, in some cases, a tendency for the corner to accumulate an excess amount of coating material. The air-pipe 8, in addition to the general drying of the surface of the tile as it passes over it, serves to blow rearward on the surplus coating material in question and cause that surplus to be taken up by roll 7 or, to put it in other words, the air-blast, in connection with the rear corner of the tile, resists the delivery of an excess quantity of coating material by the roll.

The balance of the mechanism is to be employed only in case a secondary or mottling effect is to be produced upon the tile. Rolls 10 and 11 produce such spotting or mottling effect as is desired. One mottling roll alone will accomplish this result but the effect will be mechanical, mathematical and unbeautiful when a number of the mottled tiles are placed in association. In the present case rolls 10 and 11, regardless of whether their mottling elements are alike or different, are different in diameters and construction, roll 10 being an ordinary mottling roll, while roll 11 is of the eccentric loose shell type, the shell being free to swing and turn and slip more or less independent of its core. The result is that the mottling produced by the conjoint action of the two mottling rolls is of an ever-changing character.

The rolls in vat 4 have thus far been considered as true coating rolls. But there are conditions of coating as regards consistency of material and desired thickness of coating, which cannot be satisfied by rolls acting as coating agents. Under these conditions the

rolls in vat 4, no matter how many there may be of them, are to be abandoned as coating rolls and, if employed, are to be employed simply as carrying agents. End-gate 6 is to be raised until the level of the coating material in vat 4 will be constantly maintained above the level of the tops of the rolls in the vat. The tile then slides, so to speak, over a lake of the coating material and takes on the coating by reason of direct contact with the material in the vat, the rolls in the vat, or any substitute for those rolls, acting as mere carriers to advance the tile over the coating material.

I claim:

1. In coating mechanism, a trough, a roll therein, and an evening roller and means for supplying coating material to the evener..

2. In coating mechanism, a trough, a roll therein, and an evening roll adjacent to the trough and means for supplying coating material to the evener.

3. In coating mechanism, a trough, a roll therein, means for supplying coating material to the trough, and a roll outside the trough arranged to receive overflow coating from the trough.

4. In coating mechanism, a trough, a roll therein, and an adjustable gate for regulating the level of the coating material in the trough.

5. In coating mechanism, a trough, a plurality of rolls therein, and an adjustable gate for regulating the level of the coating material in the trough.

6. In coating mechanism, a trough, a carrying roller therein, and means for continuously supplying coating material to the trough in excess of the amount required for use, and means for maintaining the level of the coating material at substantially the height of the upper face of the roll.

7. In coating mechanism, a trough, means for continuously supplying coating material to the trough, means for varying the height of coating material therein, and a coating device in the trough for applying coating to tiles or the like passing over the trough.

8. In coating mechanism, a coating device, means for passing objects to be coated across the device, and a pneumatic device for removing excess coating material from the objects.

9. In mechanism for coating tiles and similar objects, the combination of a coating device, a mottling device and means for passing separated objects to be coated in contact with the two devices.

10. In mechanism for coating tiles and similar objects, the combination of a coating device, an indefinitely variable mottling device and means for passing separate objects to be coated in contact successively with said devices.

11. In mechanism for coating tiles and similar objects, the combination of a coating device, a mottling roll and means for passing separate objects to be coated in contact with the device and roll.

12. In coating mechanism, a mottling appliance comprising a cylindrical body having a configurated surface, positive driving means therefor, a second cylindrical body having a configurated surface, non-positive means for driving the last named body, and means for supplying coating material to said bodies.

13. In coating mechanism, a mottling device comprising a cylinder, an imperforate shell hinging eccentrically upon the cylinder, and a raised design on the exterior of the shell.

14. In coating mechanism, the combination of two mottling rolls each provided with a fixed design, and means for driving the rolls variably in relation to each other.

15. In coating mechanism, the combination of a coating device, an evening device, means for removing excess coating from objects coated by the coating device, a mottling device, and means for continuously conveying objects to be acted upon by said devices.

16. A process of mottling, consisting in applying coating material to an object in a fixed design and again applying coating material to the object in a fixed design without regard to the position of the two designs with relation to each other.

17. The process of coating, consisting in applying coating material to an object in a fixed design and then applying coating material to the object in another fixed design without regard to the relative positions of the two designs.

18. In a tile coating machine, a coating trough, means for supplying liquid coating material to the trough, and a submerged tile supporting roller within the trough serving to guide the coat receiving face of the tile through the coating liquid, substantially as described.

19. In a tile coating machine, a coating trough, means for supplying liquid coating material to the trough, means for adjusting the level of coating material in the trough, a submerged tile supporting roller within the trough, and means for passing the tile over the trough with its coat receiving face in contact with the submerged support, substantially as described.

20. In a tile coating machine, a coating trough, means for supplying liquid coating material to the trough in excess of the amount required for use, and a submerged roller within the trough serving to guide the coat receiving face of the tile through the coating material, substantially as described.

21. A tile coating machine comprising a

coating trough, a roller therein entirely submerged in a coating medium, and means for passing tile over said roller so that its lower surface is subjected to the coating surface.

22. In machines for coating tile and the like, the combination of a plurality of coating rolls, means for revolving the rolls in the same direction, a trough beneath the rolls, and means for supplying coating material to the trough so that the rolls are in contact therewith and in excess of the amount required for coating.

23. In coating mechanism, the combination of a trough, a roll therein, means for rotating the roll, means for maintaining fluid coating material in the trough at approximately the level of the upper face of the roll, and means for supplying objects to be coated to the roll and removing them therefrom.

24. In coating mechanism, the combination of a trough, a plurality of rolls therein, means for rotating the rolls in the same direction, means for maintaining fluid coating material in the trough at substantially the level of the upper faces of the rolls, and means for supplying objects to be coated to the rolls and for removing them therefrom.

25. In a machine for coating separate ceramic objects, the combination of a trough, a roll therein, means for supplying liquid coating material to the trough in excess of the amount required for use, adjustable means for discharging coating material from the trough, means for supplying the objects to the roll, means on the delivery side of the trough for evening the coating on the objects and means for removing the coated objects.

26. In a machine for coating separate ceramic objects, the combination of a trough, a plurality of rolls therein, means for supplying coating material to the trough in excess of the amount required for use, means for adjusting the level of coating material in the trough, means for supplying the objects to the rolls, means on the delivery side of the trough for evening the coating on the objects and means for removing the coated objects.

27. In a machine for coating separate ceramic objects such as tiles and the like, the combination of a trough, a roll therein, means for supplying liquid coating material to the trough in excess of the amount required for use, adjustable means for discharging the coating material from the trough, means for supplying the objects to the roll, means on the delivery side of the trough for removing surplus coating from the objects and means for carrying away the coated objects.

28. In a machine for coating separate ceramic objects such as tiles and the like, the combination of a trough, a plurality of rolls therein, means for supplying liquid coating material to the trough in excess of the amount required for use, means for adjusting the coating level in the trough, means for supplying the objects to the rolls, means on the delivery side of the trough for removing surplus coating from the objects, and means for carrying off the coated objects.

FREDERICK E. GOLDSMITH.

Witnesses:
FREDK. BARRATT,
J. P. DOUGHTEN.