

F. E. GOLDSMITH.
AGITATOR.

APPLICATION FILED SEPT. 2, 1904. RENEWED AUG. 30, 1909.

939,905.

Patented Nov. 9, 1909.

2 SHEETS—SHEET 1.

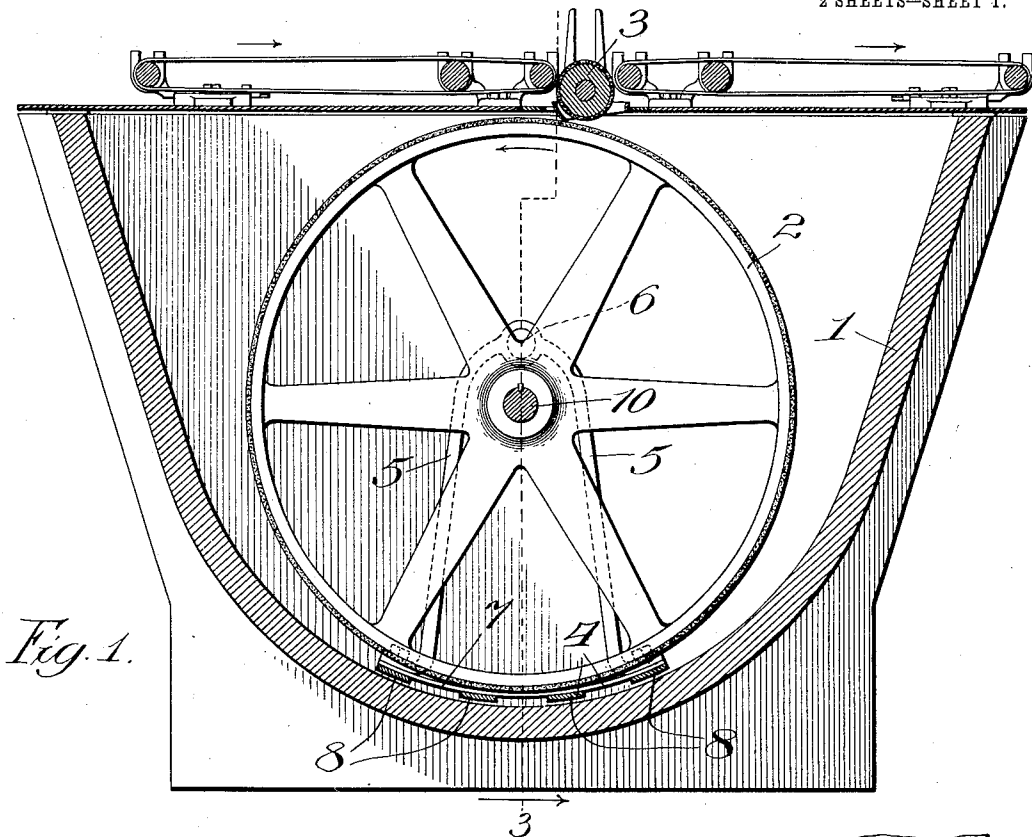


Fig. 1.

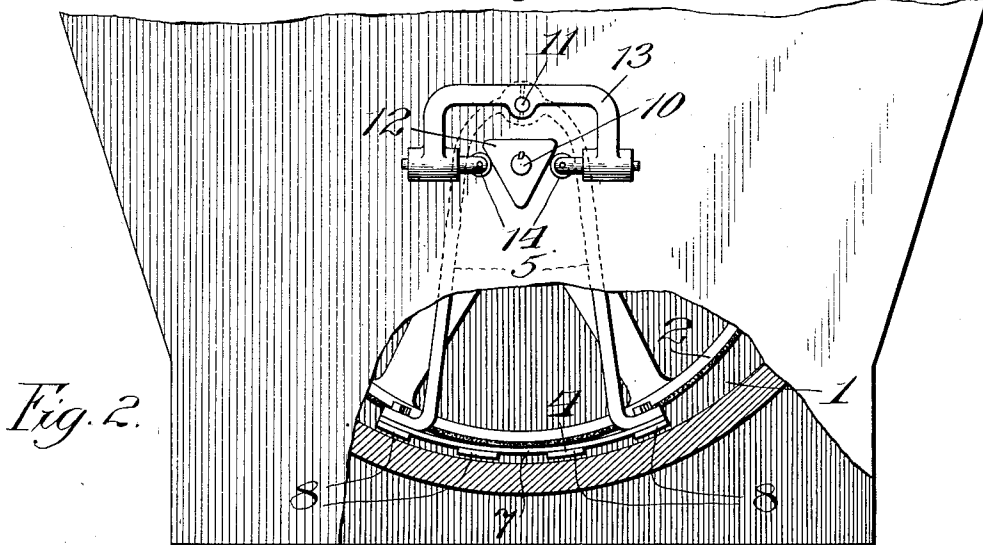


Fig. 2.

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Inventor:
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By *Henry W. Galt*
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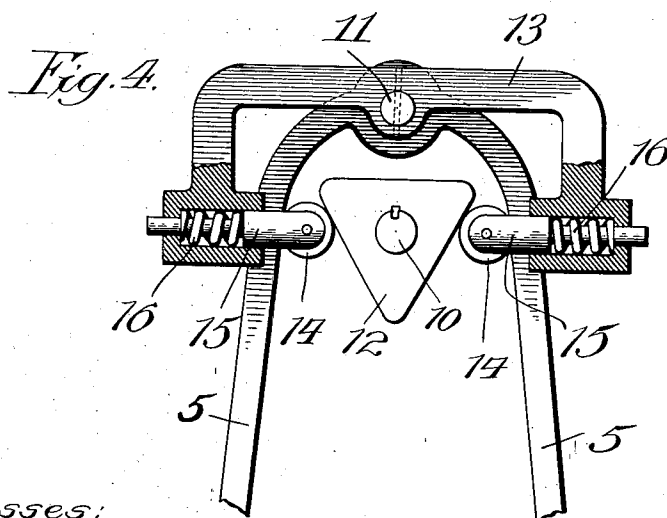
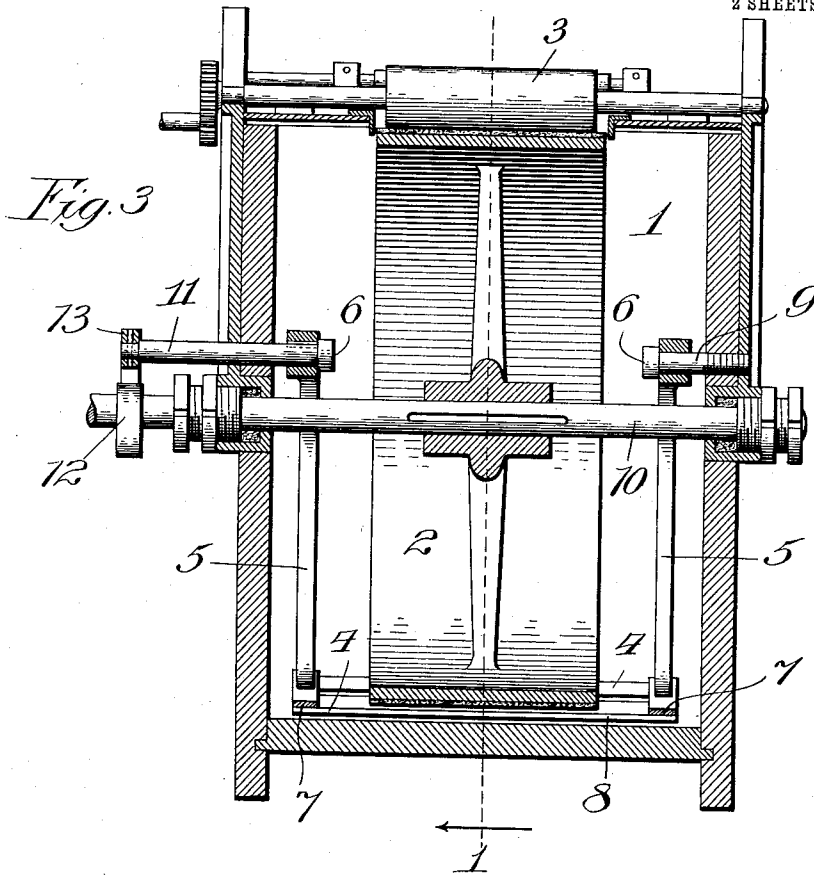
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2 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERICK ERNST GOLDSMITH, OF MIDDLETOWN, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CERAMIC MACHINERY COMPANY, OF HAMILTON, OHIO.

AGITATOR.

939,905.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed September 2, 1904, Serial No. 223,071. Renewed August 30, 1909. Serial No. 515,338.

To all whom it may concern:

Be it known that I, FREDERICK E. GOLDSMITH, a citizen of the United States, and a resident of Middletown, in the county of Butler and State of Ohio, have invented certain new and useful Improvements in Agitators, of which the following is a complete specification.

This invention relates to an improved agitator designed for use in the vat of a tile coating machine to assist in keeping the tile coating material thoroughly well mixed and prevent its heavier constituents from settling to the bottom, as they normally tend to do.

The object of the invention is to provide an improved construction in devices of the character referred to, and it consists in the matters hereinafter set forth and particularly pointed out in the appended claims, which will be fully understood when considered in connection with the accompanying drawings, in which,—

Figure 1 is a sectional side elevation of a tile coating machine provided with an agitating device constructed in accordance with my invention, the section being taken on line 1 of Fig. 3. Fig. 2 is a fragmentary side elevation thereof with a part of the vat cut away to disclose its interior. Fig. 3 is a transverse sectional elevation of the machine taken on line 3 of Fig. 1. Fig. 4 is a fragmentary detail better showing the driving cam and engaging devices.

The tile coating machine to which the agitating device constituting the present improvements is in this instance applied, is similar to that set forth in my prior application, No. 155,115, filed May 1, 1903, renewed May 31, 1904, renewal No. 210,579. In this machine, 1 designates a concave bottomed vat for containing the coating material, and 2 a drum mounted to rotate within the vat and designed to raise said material to a coating roll 3, by which it is applied to the tile.

The improved agitator which constitutes the present invention, is a vibratory structure interposed between the lower part of the drum 2 and the vat 1, and kept constantly in vibration by connections with the driving shaft. Said agitator consists of a thin transverse body portion 4, extending between the drum and bottom of the tank, and lateral arms 5 by which it is suspended

from points adjacent to the axis of the drum. Said transverse body portion is herein shown as a thin openwork structure, in the nature of a grating, formed by curved or segmental end bars 7, to which the arms 5 are attached, and by transverse slats 8 which are fastened to and connect the bars 7. As a whole it is curved upon a radius intermediate between the radius of the drum and that of the concave bottom of the vat, and preferably about a center substantially coincident with the points 6 from which the agitator is suspended. The pivotal support for one of the sides 5 of the agitator is in this instance a bolt 9 screwed into the side of the vat just above the shaft 10 of the drum 2. The pivotal support for the other side 5 of the agitator is a short shaft 11 which extends through the side of the vat in line with the bolt 9, the agitator frame being keyed to this shaft so as to oscillate therewith.

Any suitable driving connection may be interposed between the agitator shaft 11 and the driving shaft of the machine which, in this instance, is coincident with and forms a part of the shaft 10 of the drum. Such connection, as herein shown, consists of a cam 12, rigidly secured on the driving shaft 10, and of a yoke 13 rigidly secured on the end of the agitator shaft 11, said yoke being provided with contact rollers 14, or the like, which engage the opposite sides of the cam 12 and cause the yoke and agitator to swing first in one direction and then in the other, through a limited arc of movement, as the driving shaft rotates.

The composition of tile coating mediums is usually such that when left undisturbed it quickly hardens more or less, and frequently resolves into a solid mass when the process of coating is discontinued temporarily, as over night, or during a shorter period. When this occurs, if vibration of the agitator by positive mechanical means is resumed, strain or breakage to some or all parts of the mechanism is almost certain to occur. To avoid such results, yielding members are interposed between the cam 12 and the agitator frame.

15 are plungers reciprocally mounted in the yoke 13, and bearing the rollers or cam followers 14. Yielding connection such as springs 16, in interposed between the plungers and the yoke, so that when operation is resumed with a hardened mass of coating

material in the vat, the action of the cam serves at first only to urge the agitator frame, which is held stationary, or approximately so, by the coating material, in alternate directions through the springs, until the mass, by the continued impulses of the agitator, becomes loosened, and resumes its normal consistency. The springs or the like may be so arranged or adjusted that under normal running conditions they are not compressed, but the effective action of the cam 12 is communicated directly to the agitator frame, or the springs may be permitted to compress more or less, providing a cushioning effect.

The liquid material used for coating tile is notoriously difficult to maintain as a perfect mixture. As is well known such material ordinarily contains much heavy matter, usually a lead compound, held in suspension, and the tendency of such heavy matter to settle to the bottom of the tank is very marked. Such tendency, however, is completely overcome in a construction of the character described, since the vibrating agitator at the bottom of the tank serves to keep the liquid well stirred at the bottom where the tendency to settle is the greatest, while the rotary movement of the drum itself and the currents caused by such rotary movement serve to sufficiently agitate and stir up the main body of liquid above the agitator.

I claim as my invention:—

1. Agitating mechanism for tile coating machines, consisting of an agitator mounted in the vat of the machine in proximity to the bottom thereof, operating means for agitating said frame, and a cushioning device between the agitator and operating means, substantially as described.

2. In a coating machine, the combination of a concave bottomed vat, of an agitator mounted to swing to and fro in proximity to the curved bottom of the vat, actuating means, and a cushioning device between the agitator and actuating means, substantially as described.

3. In a coating machine, the combination with a vat for the coating material, of a drum mounted to rotate within said vat, and an agitator frame mounted between the lower portion of the drum and vat, and means for agitating said frame, substantially as described.

4. In a coating machine, the combination with a vat for the coating material and with a drum mounted to rotate therein, of an agitator comprising a transverse body extending between the bottom of the drum and vat, lateral arms suspending said body from points adjacent to the axis of the drum, and means for agitating said frame about its points of suspension, substantially as described.

5. Agitating mechanism for coating machines, comprising an agitating frame mounted in the vat of the machine, an exterior driving part, and means interposed between the frame and driving part by which the frame is cushioned, substantially as described.

6. Agitating mechanism for coating machines comprising an agitating frame mounted in the vat of the machine, a shaft extending through the walls of the vat, an exterior driving part, and means interposed between the shaft and driving part by which the frame is cushioned, substantially as described.

7. Agitating mechanism for coating machines comprising an agitating frame suspended in the vat of the machine, a shaft extending through the wall of the vat and connected to the frame, and an exterior driving part oscillating said shaft to give vibratory cushioning movement to the frame, substantially as described.

8. In a coating machine, the combination with a vat for the coating material and with a drum mounted to rotate therein, of an agitator extending between the bottom of the drum and vat, a shaft secured to the agitator and extending through the wall of the vat, a cam on the exterior of the vat mounted to rotate with the drum shaft, and a yoke on the agitator shaft engaging said cam to operate the agitator, substantially as described.

9. An agitator for coating machines and the like, comprising a vibratory frame mounted in the vat of the machine, driving means for vibrating said frame, and cushioning devices interposed between said driving means and frame, substantially as described.

10. An agitator for coating machines, comprising a vibratory frame suspended in the vat of the machine, a driving cam, a yoke secured to the frame and embracing said cam, and spring pressed bearing parts on the yoke engaging said cam, substantially as described.

11. An agitator for coating machines comprising a vibratory frame suspended in the vat of the machine, a driving cam, a yoke secured to the frame and embracing said cam, and spring pressed plungers in the yoke carrying cam engaging rollers, substantially as described.

12. In a coating machine, the combination with a vat for the coating material and with a drum mounted to rotate therein, of an agitator extending between the bottom of the drum and vat, a shaft secured to the agitator and extending through the wall of the vat, a cam on the exterior of the vat mounted to rotate with the drum shaft, a yoke on the agitator shaft engaging said cam to vibrate the agitator, and spring pressed bear-

ing rolls mounted in the yoke to engage the cam and give a cushioned vibratory movement to the agitator, substantially as described.

- 5 13. A coating machine comprising a vat, a coating carrier and an agitator mounted to swing in the vat in proximity to the coating carrier, feeding means, and means for depositing coating upon the object.

In testimony, that I claim the foregoing 10
as my invention, I affix my signature in
presence of two subscribing witnesses, this
17th day of August, A. D. 1904.

FREDERICK ERNST GOLDSMITH.

Witnesses:

HARRY WALBURG,
WM. LEER.