

Sept. 14, 1943.

R. A. KUEHNER

2,329,378

TILE BUTTERING MACHINE

Filed June 16, 1941

2 Sheets-Sheet 1

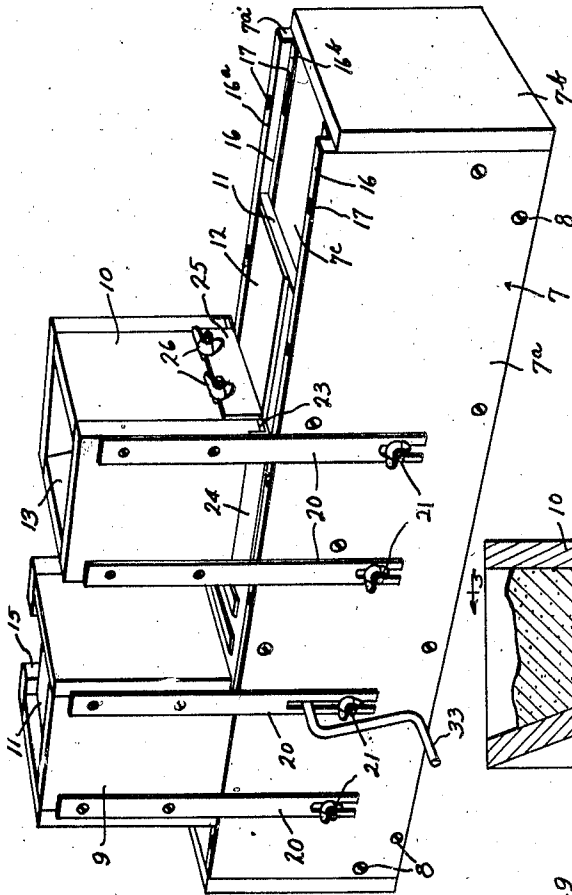
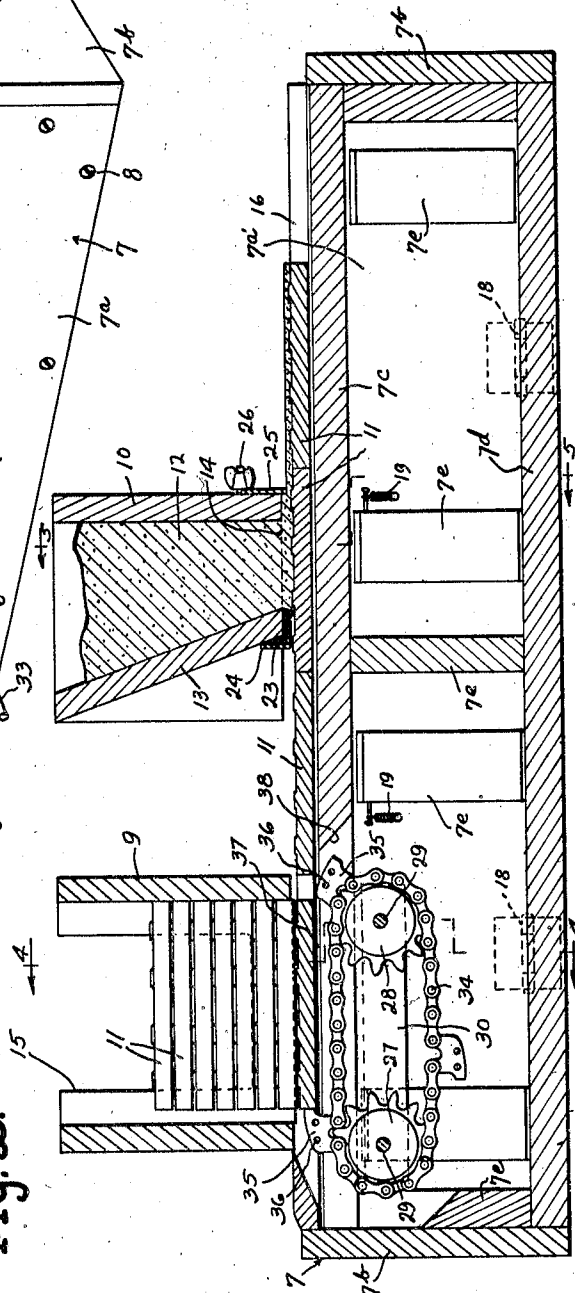


Fig. 1.

Fig. 2.



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2 Sheets-Sheet 2

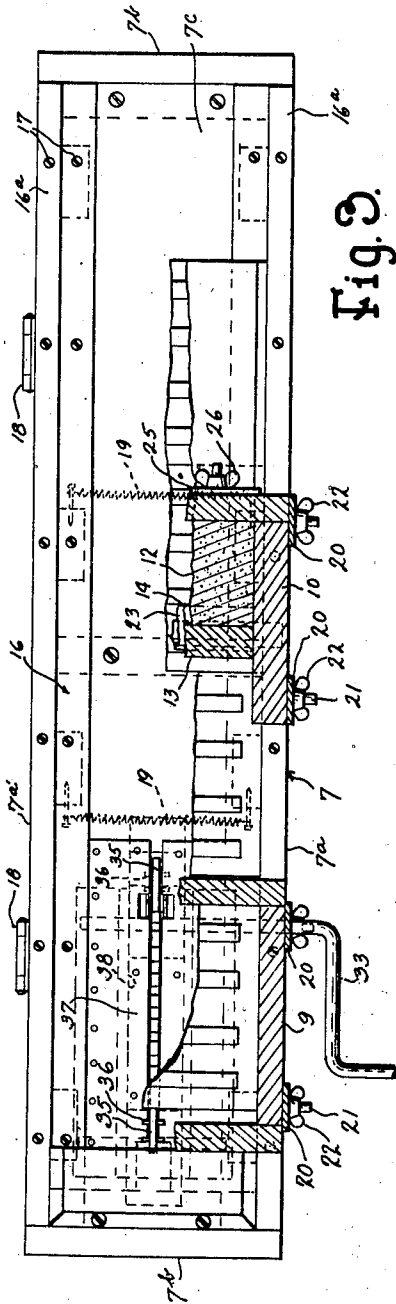


Fig. 3.

Fig. 5.

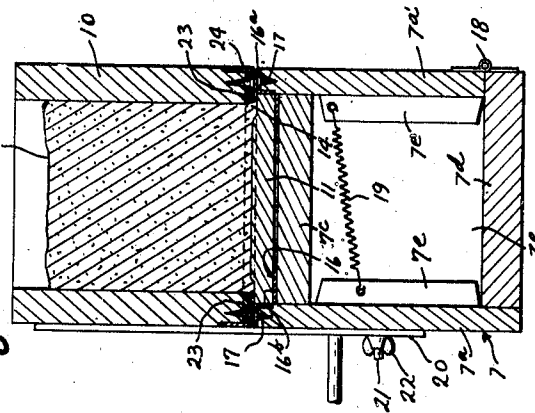


Fig. 4.

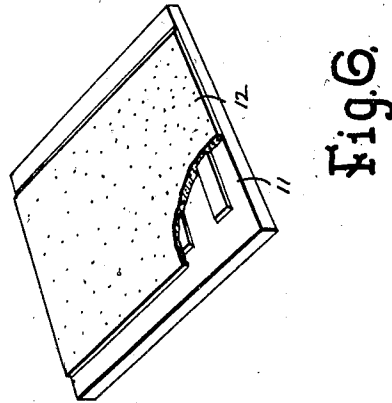
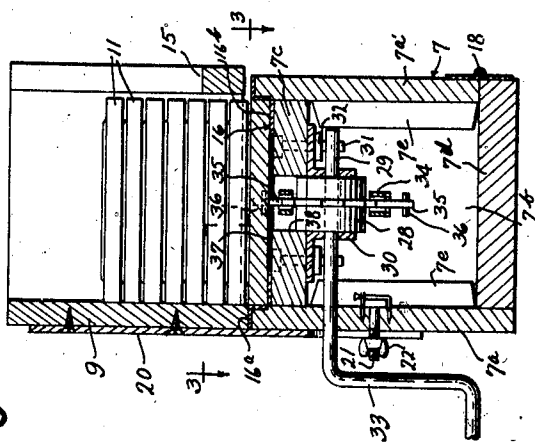


Fig. 6.

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UNITED STATES PATENT OFFICE

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TILE-BUTTERING MACHINE

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5 Claims. (Cl. 91—30)

This invention relates to equipment used in the decorative tile setting trade, and has particular reference to a device for "buttering" tile preparatory to setting it in final position for use.

It has been the practice heretofore in this art to "butter" the tile by hand. This operation is usually performed by a tile setter's helper. The helper generally holds the tile in one hand with the back of the tile toward him, and a small quantity of cement is skimmed or "battered" onto the back of the tile and it is then handed to the tile setter for placing on the wall or other surface.

The manual "buttering" of the tile has many disadvantages. For example, it is difficult if not impossible for the helper to manually "butter" the tile with any degree of uniformity. Either he gets too much on or not enough. Often times too much cement on the back of the tile in the "buttering" operation causes the helper to get sore fingers, known in the trade as "strawberries." Such a condition is impossible when this machine is used to "butter" the tile, because the cement is skimmed on evenly and a narrow marginal area is left free of cement at either side so that the operators can handle the tile without coming in contact with the cement.

A further object of the invention is to generally improve the setting of tile for in addition to the general uniformity obtained in using this device to "butter" the tile, a much stronger wall results because there is an ample amount of cement on each tile, where it is most needed.

The foregoing and other objects and advantages of the invention will appear as the description proceeds, reference being made from time to time to the accompanying drawings, in which:

Fig. 1 is a perspective view of a device embodying my invention.

Fig. 2 is a longitudinal section taken through the device illustrated in Fig. 1.

Fig. 3 is a section taken substantially on the line 3—3 of Fig. 4.

Fig. 4 is a section taken substantially on the line 4—4 of Fig. 2.

Fig. 5 is a section taken substantially on the line 5—5 of Fig. 2.

Fig. 6 is a perspective view of a tile after it has been "battered" with the device illustrated in Fig. 1.

Referring now more particularly to the drawings, it will be seen that in the embodiment herein disclosed (Fig. 1) my device consists generally of a rectangular box or body portion 7, compris-

ing side 7a, ends 7b, top 7c, bottom 7d, and reinforcements 7e (Fig. 2), which may be assembled and secured together by any suitable means such as screws 8. The side 7a' is hinged as at 18 to the bottom 7d. The box 7 serves as a housing for the mechanical elements hereinafter described. Superimposed on the box 7 are two hoppers 9 and 10. The hopper 9 is intended to hold a plurality of tile 11, and the hopper 10 is adapted to hold a quantity of Portland cement or neat cement 12, with which the tile 11 is to be "battered." The hopper 10 is provided with an inclined inner wall 13, so that the cement 12 may be fed through a restricted opening 14 in the bottom of the hopper. The back wall of the hopper 9 has a cut-out portion 15 so that a plurality of tile may be placed in the hopper by hand.

The tile 11 are fed from the bottom of the hopper 9 onto the track 16, which is positioned along the upper edges of the box 7. The track 16 is preferably made of brass or other non-corrosive material, and is secured in position by screws 17 or other suitable means. The elevated part 16a of the track 16 is preferably made separate from the base portion 16b, so that the back member 7a' of the box 7 may be moved outward to accommodate wider tile, and so that at the back may be swung open on the hinges 18 (Fig. 2) in order that access may be had to the mechanical parts of the device, hereinafter explained. The hinged back 7a' is normally held in closed position by the springs 19 which are secured at either end to the reinforcing members 7e.

The hoppers 9 and 10 are provided with slotted supporting arms 20 which are adapted to engage threaded members 21 positioned on the front member 7a of the box 7. Wing nuts 22 engage the threaded members 21 and permit different degrees of adjustment for height to be made between the hoppers 9 and 10, and the box 7. This is done to accommodate tile of various thicknesses.

The cement hopper 10 is provided on its two sides and on the back with rubber strips 23 which are adjustably secured in place by angular members 24. The rubber strips 23 prevent the cement from being extruded between the lower peripheral edges of the hopper and the tile. The rubber strips 23 on either side of the hopper 10 overhang the sides of the tile, so that an area of approximately one-quarter of an inch along each side of the tile is left free of the cement. This enables the operator to hold the "battered" tile

between his thumb and fingers without danger of having the cement contact his fingers.

The leading edge of the hopper 10 (Fig. 1) is provided with an adjustable blade 25 so that different degrees of clearance may be had between the edge of the blade 25 and the tile. This enables the operator to adjust the thickness of the layer of cement to be placed on the tile. The blade 25 is secured to the hopper 10 by bolts and wing nuts 26, or other suitable means.

Positioned in the rear of the box 7 and immediately below the hopper 9, is the driving mechanism which moves the tile from the hopper 9 to and under the hopper 10, to be "battered." The driving mechanism consists of two sprocket wheels 27 and 28, which are carried on suitable shafts 29, the latter being journaled in angle iron. Suspension members 30 are secured to the outside of the top member 7c by bolts 31 and nuts 32, or other suitable means. The sprocket 28 is provided with a crank 33. A chain 34 provided with a plurality of dogs 35 is arranged to travel over the sprockets 27 and 28. The dogs 35 are preferably made of fiber or other suitable material so that they will not scratch the tile 11. In the embodiment shown in Fig. 2, the dogs 35 are provided with laterally extending pins 36 which are intended to ride on top of a slotted metal member 37 which covers the cut-out portion 38 formed in the top member 7c.

The operation of the device is as follows. A plurality of tile 11 is placed in the hopper 9 with their finished faces disposed toward the bottom. The crank 33 is then turned until the dogs are in the position shown in Fig. 2, so that the bottom tile may drop from the hopper 9 onto the track 16. As the crank 33 continues to rotate, one of the dogs 35 engages the back of the tile positioned on the track 16, moving it toward the hopper 10. When the first tile has reached a position so that it is no longer actuated by the dog 35, the second lower-most tile then drops into position on the track 16 and the operation is repeated. As the second tile moves from its position immediately below the hopper 9 toward the hopper 10, it advances the tile immediately ahead of it in the direction of the hopper 10. As the third tile is advanced from beneath the hopper 9, the tile which was first moved will arrive at a position immediately below the hopper 10. When that condition is arrived at, the hopper 10 is loaded with neat cement and the work of "battering" the tile is commenced. It will be noted that the cement is never placed in the hopper 10 until the first tile

has been advanced to its position beneath the hopper 9 so that none of the cement may escape unintentionally from the hopper 10. After the hopper 10 is filled with cement, the blade 25 is adjusted so that the desired thickness of cement may be placed on the first tile.

As each successive tile is dropped from the hopper 9 onto the track 16 and is advanced by means of the dogs 35, it advances the tile immediately in front of it. As each tile passes beneath the hopper 10, it is coated or "battered" with a uniform layer of cement. As the first advanced tile reaches the end of the track 16, it is removed from the device by the operator and placed in position for final use. The operation is then repeated until a sufficient number of tile have been "battered."

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

1. In a device of the character described, the combination of a hopper for dispensing tile, a hopper for dispensing cement, a housing for supporting both of said hoppers, a track which extends along said housing beneath said hoppers, means to propel the tile beneath the dispensing area of said last mentioned hopper, said last mentioned hopper having adjustable means for applying a predetermined thickness of cement to the tile dispensed from said first hopper, and means associated with said housing for varying the width of said track, said means including a movable wall comprising part of said housing.

2. The combination defined in claim 1, in which the cement dispensing hopper is provided with an adjustable wiping blade along one edge of its dispensing area, and resilient pads along the other sides of said area.

3. The combination defined in claim 1, in which there are means for regulating the clearance between the hoppers and said track, said means comprising adjustable supporting brackets for the hoppers.

4. The combination defined in claim 1, in which the said propelling means comprise sprockets and a chain, the said chain having relatively soft dogs at spaced intervals thereon, said dogs being adapted to contact the tile dispensed from said first named hopper, and advance the tile along said track.

5. The combination defined in claim 1, in which the said housing has a hinged side member, which said hinged side member supports one element of the said track, whereby the said track may be adjusted for varying widths.

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