J. P. SCOVILL.

FEED MECHANISM FOR TILE COATING MACHINES.

APPLICATION FILED OCT. 5, 1904. RENEWED NOV. 20, 1909.

945,870. Patented Jan. 11, 1910.

2 SHEETS—SHEET 1.

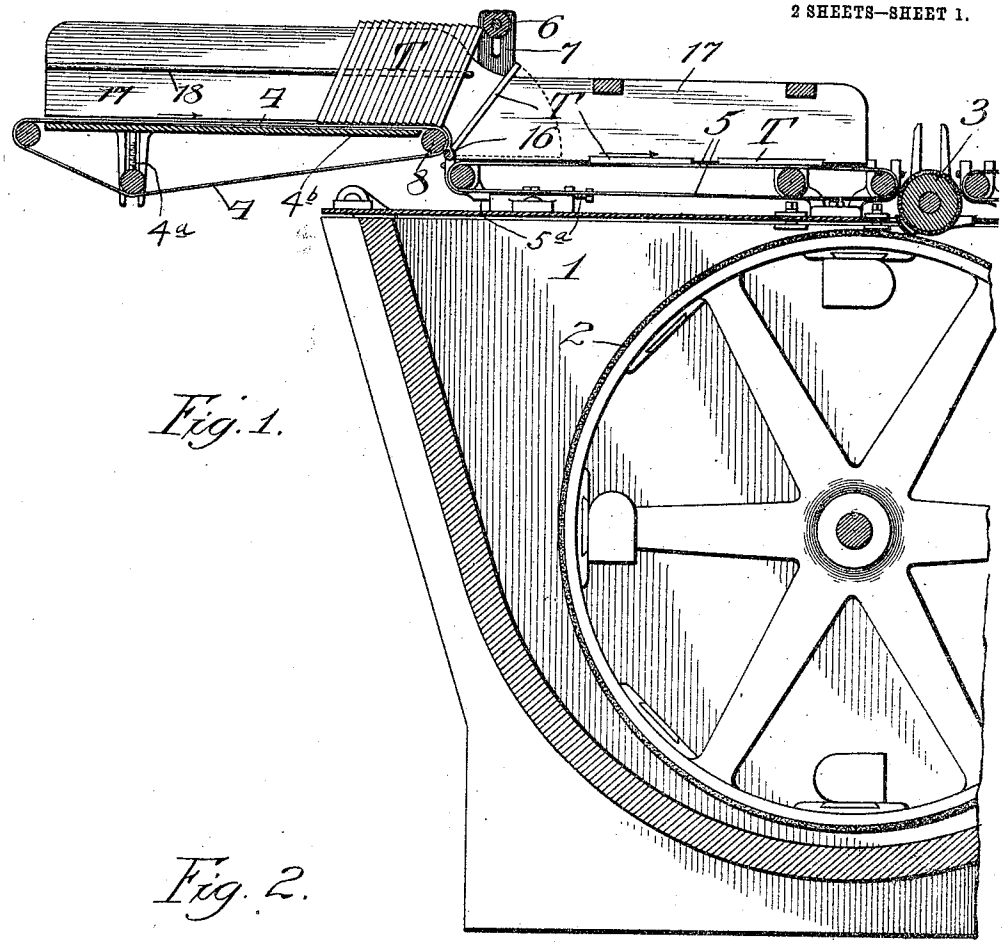
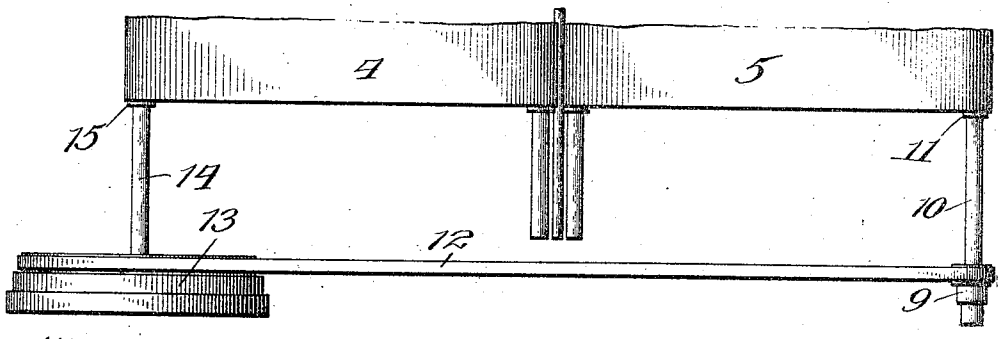


Fig. 1.

Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

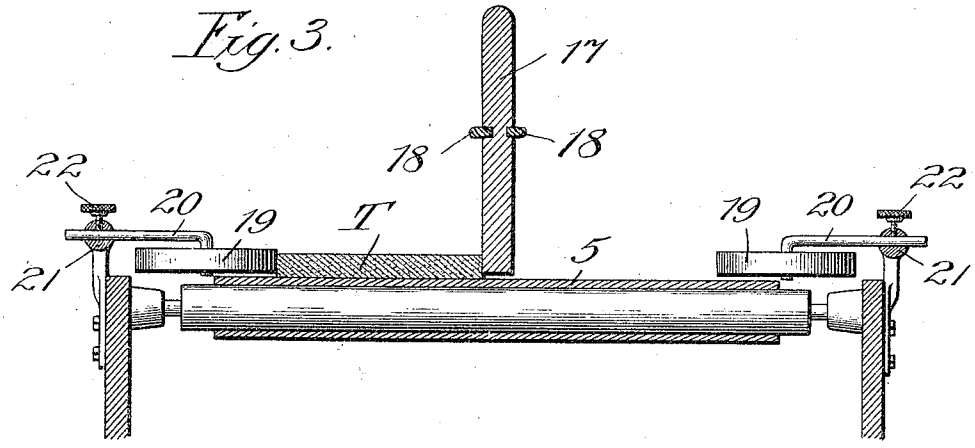
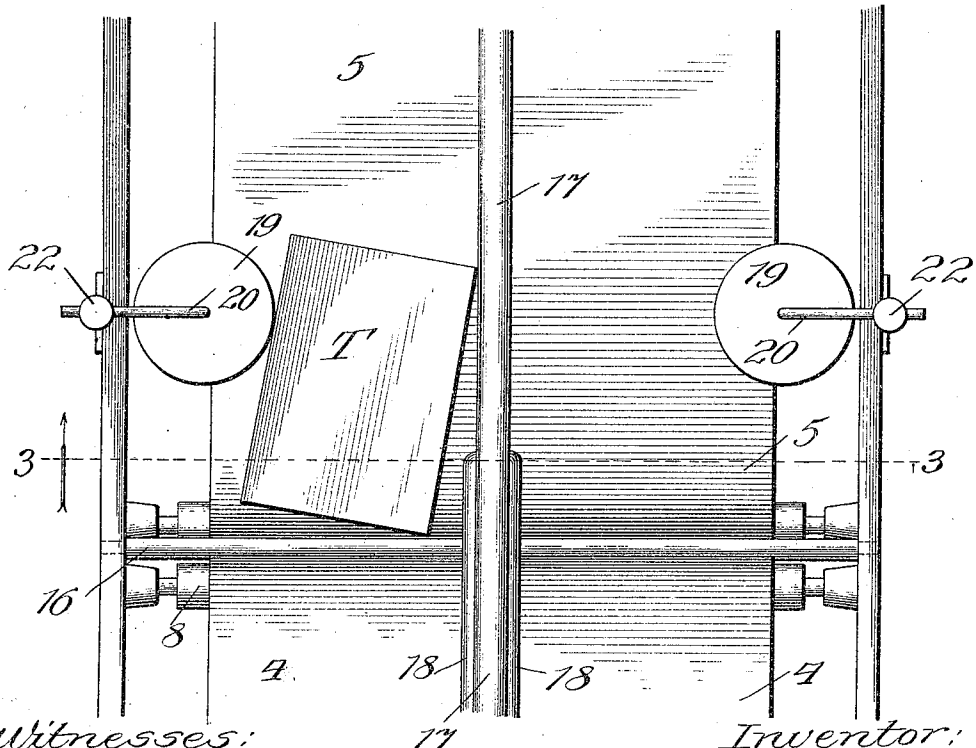


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES P. SCOVILL, OF WYOMING, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CERAMIC MACHINERY COMPANY, OF HAMILTON, OHIO.

FEED MECHANISM FOR TILE-COATING MACHINES.

945,870. Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed October 5, 1904. Serial No. 227,203. Renewed November 20, 1909. Serial No. 529,099.

To all whom it may concern:

Be it known that I, JAMES P. SCOVILL, a citizen of the United States, and a resident of Wyoming, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Feed Mechanisms for Tile-Coating Machines, of which the following is a specification.

This invention relates to improvements in feed mechanisms for tile coating machines and the like, and has for its object to provide an improved construction in devices of this character, such as will enable the tile to be placed in the machine in stacks of considerable numbers, from which the individual tile will be automatically separated and fed one by one to the coating roll in continuous succession in practically the same manner as they were separately introduced by hand.

In the accompanying drawings,—Figure 1 is a sectional side elevation of a feed mechanism constructed in accordance with my invention and applied to a tile coating machine. Fig. 2 is a fragmentary top plan view showing the manner of driving the two aprons of the feed mechanism at proper relative rates of speed. Fig. 3 is a transverse sectional elevation taken on line 3—3 of Fig. 4. Fig. 4 is a top plan view of the devices for straightening the tile on the apron, which are shown in section in Fig. 3.

The tile coating machine to which the feed mechanism constituting the present improvements is in this instance applied, is similar to that set forth in the application of Frederick E. Goldsmith, Serial No. 155,115, filed May 1, 1903.

In this machine, 1 designates the vat for the liquid coating material, 2 a drum designed to rotate through the tile coating material in the vat, and 3 the coating roll which takes up the coating material lifted from the vat by the drum, and in turn applies it to the tile T.

The present invention has to do solely with the mechanism for feeding the tile to the coating roll 3, and comprises a slow moving endless carrier apron 4 upon which the tile are first placed, and a rapidly moving apron 5 which receives the tile from the first apron and conveys them one by one to the coating roll 3. The tile are placed upon the first carrier apron in stacks, in which the tile rests on end with just enough of a forward inclination to keep them together in a compact mass, as shown in Fig. 1. The upper end of the stack is held from tipping forward by a stop bar 6, which is desirably made in the form of an idle or non-driven roll, and is mounted in slotted brackets 7, or otherwise, so as to be capable of being adjusted up and down to fit various lengths of tile. Then as the carrier 4 travels slowly forward in the direction of the stop bar 6, the foremost tile will drop down off the point of the apron where it passes around its forward guide roller 8, its upper end slipping from behind the stop bar and leaving the succeeding tile free to tip forward in turn against this stop bar. When the foremost tile thus drops off the slow moving rear carrier it falls upon the rapidly moving front carrier, the rear end of which is located just beneath and below the front end of the slow moving carrier 4, and is carried forward so rapidly that it gets out of the way of the next succeeding tile before the latter has in its turn been dropped by the slow moving apron. The front carrier 5, for this purpose, is driven at a velocity approximately as many times greater than that of the rear carrier as the length of the tile is greater than its thickness. Suitable means are provided for driving the carriers at these desired relative rates of speed, such means being indicated, in this instance, by the cone pulley and belt drive, shown in Fig. 2, in which a small driven cone 9, is shown as mounted on the shaft 10 of the driving roll 11 of the front carrier, and is connected by a belt 12 with a very much larger cone 13 fixed on the shaft 14 of one of the rolls 15 of the rear carrier. By this connection the motion of the front carrier 5, which will be driven by any suitable mechanism (not herein shown), will be transmitting the rear carrier apron 4, but at a very greatly reduced rate of speed, which will vary according to the relative sizes of the cones 9 and 13 and may be made greater or less as desired, by shifting the belt 12 upon the various lifts of the cone. Obviously, however, any other suitable drive, such as a toothed gearing, including a suitable change speed mechanism, may be substituted for the belt drive shown, if so desired.

In order to prevent the tile from being thrown off from the carrier 5 by the impact

of its rapidly moving surface upon the lower end of the tile as it first slips down from the carrier 4, a ledge 16, which may be formed by a small bar or roll, is, as a further improvement, interposed between the adjacent ends of the two aprons, as shown in Fig. 1. Then, as the foremost tile drops from the point of the rear carrier and slips away from beneath the stop bar 6, its lower end will strike the ledge 16 and be for the moment prevented from striking the front carrier 5. The tile as a whole, however, will continue to fall in a pivotal movement about the ledge 16 and will eventually be landed flat upon the carrier in front of the ledge, after the manner shown in dotted lines in Fig. 1. Tension adjusting devices 4^a and 5^a, respectively, are shown as provided in connection with the aprons 4 and 5 to enable them to be properly taut, and the upper portion of the slow moving apron 4 is shown extended above an immediately subjacent table 4^b, by which it is prevented from sagging under the weight of the stack of tile.

When the tile are not too wide relatively to the width of the aprons, the capacity of the feed mechanism can be greatly increased by mounting one or more vertical partition boards 17 longitudinally above the aprons and providing separate stacks of tile on opposite sides of such partition board. Then in order to overcome any tendency which may exist for the tile to drag frictionally against such partition board and thus possibly be caused to fall backward upon the slow moving apron, such partition board can be provided on each face with a rib 18, preferably of metal, which will hold the edges of the tile away from the board and thus reduce the friction and drag along the board to a minimum. As a further improvement, also, and for the purpose of straightening the tile around on the apron so that they will pass squarely over the coating roll, straightening devices are herein shown as provided, as illustrated in Figs. 3 and 4. Such straightening devices involve the provision at each side of the rapidly moving apron of a deflector 19 which may conveniently take the shape of an idle roller mounted to rotate in a vertical plane. If such a roller is located at a distance from the partition 17 only slightly greater than the width of the tile which are being coated, it will engage the adjacent edge of a tile, in case the latter falls upon the slow moving apron in an oblique position, as is indicated in Fig. 4, and in the continued forward movement of the apron will force the tile around until it lies close against the partition and substantially square to the coating roll. As herein shown each deflecting roller 19 is revolubly mounted upon the downwardly bent end of an adjustable arm 20 which extends through a clip 21 on the machine frame and can be locked in any desired position, in said clip by a thumb screw 22, so that the device may be set to accommodate any width of tile for which the machine is adapted.

Obviously very wide tile may be accommodated by removing the partition board 17, in which case the deflecting rollers 19 at opposite margins of the apron will coöperate to straighten the tile in substantially the manner described. In practice the deflecting rollers will be placed somewhat farther from the edges of the slow moving apron than Fig. 4 indicates, so that there may be no danger of the tile being dropped upon these rolls when it falls from said apron.

I claim as my invention:

1. A feed mechanism for tile coating machines and the like, comprising a slow moving endless carrier, means for supporting the tile thereon on end, and a rapidly moving endless carrier upon which the tile drop from the slow moving carrier, substantially as described.

2. A feed mechanism for tile coating machines and the like, comprising a slow moving endless carrier upon which the tile are placed on end, a stop above and at the front of the carrier against which the tile are inclined, and a rapidly moving endless carrier arranged as a subjacent continuation of the slow moving carrier and upon which the tile drop as they reach the end of the slow moving carrier and slip from beneath the stop, substantially as described.

3. A feed mechanism for tile coating machines and the like, comprising a slow moving endless carrier upon which the tile are placed on end, a stop roll above the front of the carrier against which the tile is inclined, and a rapidly moving endless carrier arranged as a subjacent continuation of the slow moving carrier, and upon which the tile drop as they reach the end of the slow moving carrier and slip from beneath the stop, substantially as described.

4. A feed mechanism for tile coating machines and the like, comprising a slow moving endless carrier, upon which the tile are placed on end, a rapidly moving endless carrier upon which the tile drop from the slow moving carrier, and a ledge interposed between the proximate ends of the carriers to temporarily check the tile as it drops and turn it down upon the rapidly moving carrier, substantially as described.

5. A feed mechanism for tile coating machines and the like, comprising a slow moving carrier on which the tile are placed on end, a rapidly moving carrier on which the tile drop from the slow moving carrier, and a roll interposed between the proximate ends of the carriers to temporarily check the lower edge of the tile as it drops and turn it down upon the rapidly moving carrier, substantially as described.

6. A feed mechanism for tile coating machines and the like, comprising a slow moving carrier upon which the tile are placed on end, a stop above and at the front of the carrier against which the tile are inclined, a rapidly moving carrier arranged as a subjacent continuation of the slow moving carrier and upon which the tile drop as they reach the end of the slow moving carrier and slip from beneath the stop, and a ledge interposed between the proximate ends of the carrier to temporarily check the tile as it drops and turn it down upon the rapidly moving carrier, substantially as described.

7. A feed mechanism for tile coating machines and the like, comprising a slow moving carrier upon which the tile are placed on end, a rapidly moving carrier upon which the tile drop from the slow moving carrier, a partition extending longitudinally above the carriers to divide separate stacks of tile placed upon the feed mechanism, and an antifriction rib projecting laterally from the face of the partition, substantially as described.

8. A feed mechanism for tile coating machines and the like, comprising a slow moving carrier upon which the tile are placed on end, a rapidly moving carrier upon which the tile drop from the slow moving carrier, and a deflector mounted above the rapidly moving carrier to engage and straighten the position of the tile falling thereon, substantially as described.

9. A feed mechanism for tile coating machines and the like, comprising a slow moving carrier upon which the tile are placed on end, a rapidly moving endless carrier upon which the tile drop from the slow moving carrier, and a deflecting roller adjustably mounted above the rapidly moving roller to engage and straighten the position of the tile falling thereon, substantially as described.

10. In feed mechanism, means for vertically supporting stacks of tile, and means for distributing the stacks of tile so that they may be coated.

11. In feed mechanism, means for vertically supporting stacks of tile, means for separately moving the tile from a vertical to a horizontal position, and automatic means for acting on stacks of tile so as to separate the individual tile and carry them to a coating device.

12. In feed mechanism, means for vertically supporting stacks of tile, means for separately moving the tile from a vertical to a horizontal position, and means for distributing the tile so that they may be acted on individually by a coating device.

13. In coating mechanism, a moving carrier upon which tile are placed in stacks, a second carrier adjacent to the first, and means for delivering the tile from the first carrier to the second so that they may be individually acted on by the coating device.

14. In feed mechanism, automatic means for distributing tile so that they may be individually acted on by a coating device, including a slow-moving carrier upon which the tile are placed in stacks, and a faster-moving carrier to which the tile are delivered clear of each other.

In testimony, that I claim the foregoing as my invention, I affix my signature in presence of two subscribing witnesses, this 16th day of August, A. D. 1904.

J. P. SCOVILL.

Witnesses:
HARRY WALBURG,
WM. LOW.