C. P. FUNK.

METHOD OF MAKING DRAIN TILE.

APPLICATION FILED APR. 22, 1921.

1,408,877. Patented Mar. 7, 1922.

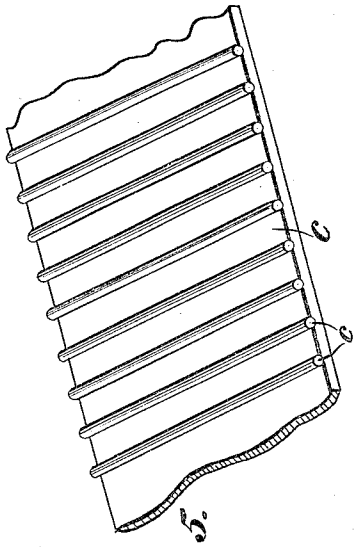

Fig. 5.

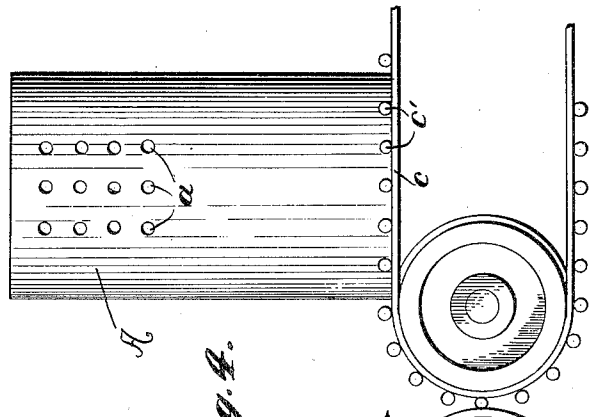

Fig. 4.

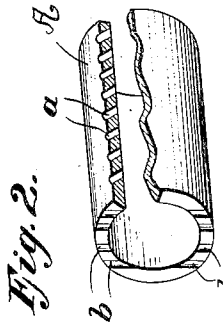

Fig. 2.

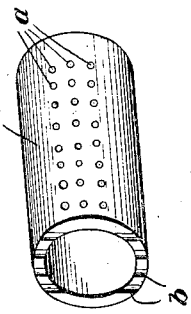

Fig. 1.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING DRAIN TILE.

1,408,877. Specification of Letters Patent. Patented Mar. 7, 1922.

Application filed April 22, 1921. Serial No. 463,644.

To all whom it may concern:

Be it known that I, CAPTAIN P. FUNK, a citizen of the United States, residing at Wooster, in the county of Wayne and State of Ohio, have invented a new and useful Method of Making Drain Tile, of which the following is a specification.

My invention relates to improvements in the method of making drain tile, and particularly to the novel method of making drain tile of the character described in my application for patent on drain tile now pending and divided herefrom, filed Sept. 19, 1920, Ser. No. 413,631. The principal object of my present invention is to improve upon the methods of manufacturing drain tile heretofore employed, and provide means for producing an improved tile product herein incidentally described, my improved method consisting of puncturing the body of the tile, while in motion through the tile press in plastic condition, with a series of parallel rows of punctures from end to end thereof, said punctures being made diagonally with the length of the tile and parallel in said diagonal direction to each other; and it further consists in subsequently standing the tile on one end upon a corrugated surface while in a plastic condition, and being removed from the tile press—all as hereinafter more fully set forth, and as stated in the appended claims.

My invention is illustrated by the accompanying drawings, in which similar letters and figures of reference indicate like parts, and part of which pertain more particularly to the design of the manufactured product which is the subject of my said pending application, and referred to herein for better illustration of my improved method.

Referring to the drawings, Fig. 1 is a view in perspective of a tile such as is produced by my method, and is otherwise immaterial herein.

So, also Fig. 2 is a longitudinal sectional view showing the diagonal perforations and the end furrows to better illustrate my improved method.

Fig. 3 is a side sectional view of the mechanism I employ to perforate the tile wall; Fig. 4 is a side vertical elevation of a diagonally perforated tile, showing also the means I employ in the process of notching the one end of the tile in its passage from the tile press in plastic condition. In the drawings A is the tile wall or body, and *a*, *a* are perforations therethrough, and *b*, *b* are notches indented transversely across one end of the tile body, but no claim is made herein to the tile product specifically and apart from the method used in its manufacture.

The particular advantages of a tile product having a series of longitudinal rows of perforations which run through the tile body in a direction diagonal to the body lengthwise, and parallel to each other in the diagonal direction, the perforations being numerous and small, as shown in the drawings, are stated in my said prior application and are herein referred to for a better understanding of my improved method of manufacturing the same, said method being essential to such manufacture, as it has been found to be practically impossible to produce tile of this character without the use of diagonally operative mechanism which drives a bar carrying a series of needle punches, as shown in Fig. 3, and which are continuously operable diagonally while the tile is passing through the tile press in a plastic condition. It is also apparent that such operation contributes materially in propelling the tile through the press by its frequent thrusts of the series of needle punches in a diagonal direction outwardly from the tile press shown in the drawing. Moreover, this method is essential to making the numerous small punctures, because they could not be made vertically without the tile being at rest, and the direct pressure on the body of the tile in plastic condition would cause it to collapse in the process, which result is overcome by the diagonal direction of the needle punches used for the puncturing. By this method also it is possible to make the punctures through the tile wall parallel to each other, whereby better results are obtained for drainage as set forth in my said prior application.

My method also provides means for notching one end of the tile while passing from the tile press in a plastic condition, by setting the tile endwise upon a corrugated surface shown in Fig. 5, which leaves one end of the tile smooth, and thus a very superior tile for drainage purposes is produced by a simple method in a single operation, and but once handling the tile to set it endwise on the corrugated surface, with greater rapidity and perfection than has been possible in

methods heretofore employed in the manufacture of drain tile. I am aware it is not new to perforate hollow tile for drainage, and such I do not broadly claim. The improved method which I herein claim comprises the puncturing mechanism above set forth, in cooperation with the tile press, in which a drive bar, carrying a series of needle punches, reciprocates diagonally on a frame, in such a manner as to thrust the needles through the body of the tile in a slanting direction, periodically, and outwardly in the direction of the tile while passing from the tile press.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is—

1. The herein described method of making drain tile, which consists in puncturing the tile body with a plurality of parallel rows of diagonal perforations, which are laterally parallel to each other, by means of a series of puncturing needles mounted on a common shaft, which is driven reciprocally in a diagonal direction outwardly, in such a manner as to thrust said needles periodically in a slanting direction through the body of the tile while in a plastic condition, and passing from the tile press.

2. The herein described method of making drain tile, which consists in puncturing the tile body with numerous small punctures, while in plastic condition emerging from the tile press, and subsequently notching one end of the tile by setting it endwise upon a corrugated surface while in a plastic condition.

In witness whereof, I hereunto set my hand this 19th day of February, A. D. 1921.

CAPTAIN P. FUNK.

In presence of—
HIRAM SWARTZ,
JOHN C. MCCLARAN.