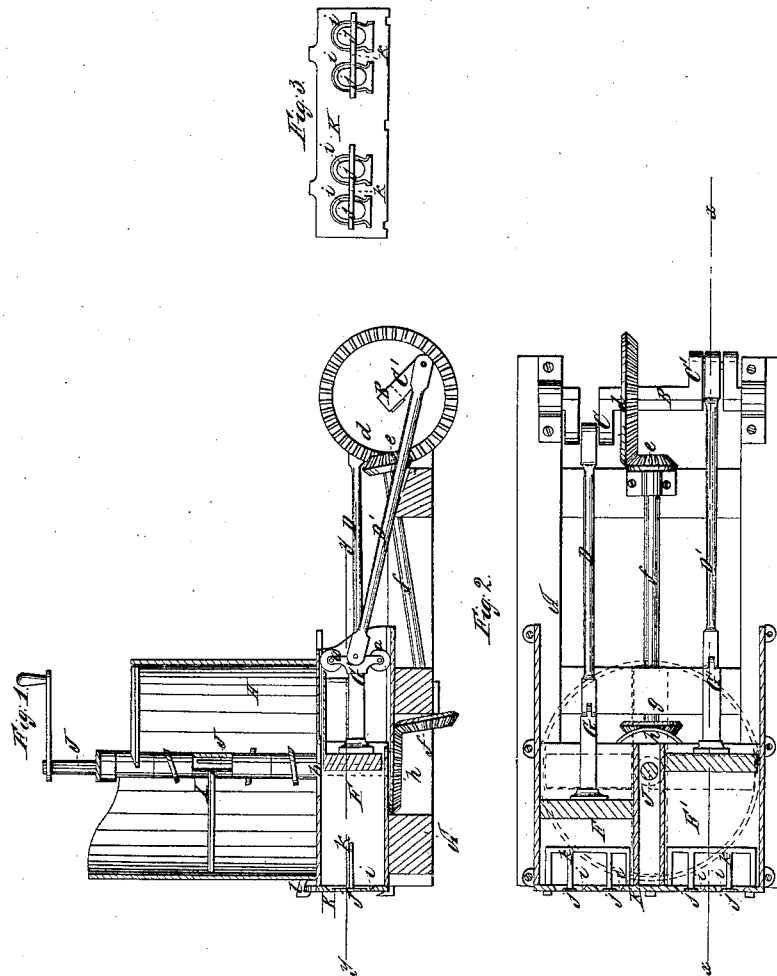


Collins, Evans & Smedley,

Tile Machine.

N^o 50,097.

Patented Sep. 26, 1865.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOS. A. COLLINS, JOSIAH D. EVANS, AND THOS. J. SMEDLEY, OF SMYRNA,
DELAWARE.

IMPROVED MACHINE FOR MAKING DRAIN-TILES.

Specification forming part of Letters Patent No. 50,097, dated September 26, 1865.

To all whom it may concern:

Be it known that we, THOMAS A. COLLINS, JOSIAH D. EVANS, and THOMAS J. SMEDLEY, of Smyrna, in the county of Kent and State of Delaware, have invented a new and Improved Machine for Making Drain-Tiles; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is a horizontal section of the same, the plane of section being indicated by the line *y y*, Fig. 1. Fig. 3 is an inside elevation of the front plate detached.

Similar letters of reference indicate like parts.

This invention relates to a tile-machine which is provided with two plungers. These plungers work in suitable chambers under the mixer, and motion is imparted to them by a double-crank shaft, the cranks of which are placed in opposite directions, causing one plunger to recede while the other advances, and vice versa, in such a manner that the strain on the machine is reduced without reducing the quantity of work produced.

The end plate of the chambers or barrels which contain the plungers are perforated with openings corresponding to the form of tile to be produced, and the centers or cores of these holes are supported by cross-bars or bridge-pieces, which are secured edgewise to the inner surfaces of said end plates. By having these bridge-pieces placed edgewise, the clay after having passed the same closes up again, and the tiles produced present an unbroken surface all round. The mixing-arms are cast in sections, each arm being provided with its separate hub, so that the same can be readily removed, one independent of the other, whenever it may be desirable, for the purpose of repairing, sharpening, or replacing one of said arms.

A represents a frame, made of wood or any other suitable material of sufficient strength

for the occasion. One end of this frame forms the bearings for the driving-shaft B, which is provided with two cranks, C C'. These cranks connect by pitmen D D' each with one of the plungers E E', which work in separate chambers F F', and said cranks are placed in opposite directions, so that if one of the plungers moves in the other moves out, and vice versa. The connection between the plungers E E' and the pitmen D D' is effected by means of cross-heads G G', to which the shanks or rods of the plungers are rigidly connected, and, in order to reduce the friction, rollers *a* are inserted between the cross-heads and their guides, as shown in Fig. 1.

The chambers F F' are firmly secured to the frame A, and they communicate through apertures *b* with the interior of the box H, in which the clay is mixed by the action of the mixer I. This mixer consists of a series of arms which are cast separate, each being provided with a hub, by means of which it can be secured to the vertical arbor J. By making the arms one independent of the other each arm can be readily taken out and sharpened or repaired, or, if necessary, replaced by another, and the necessity of throwing away the entire mixer, if one of the arms should be broken, is avoided. The mixer I receives its motion by the action of a bevel-wheel, *d*, on the main shaft, which gears in a pinion, *e*, on an intermediate oblique shaft, *f*, and from this shaft motion is transmitted to the mixer by a bevel-gear, *g h*, as shown in Fig. 1. The clay, after having been deposited in one of the chambers F or F', is forced by the action of the appropriate plunger through the openings *i* in the front or end plate, K. These openings are made to correspond to the transverse section of the tile to be produced, and their cores *j* are held in position by bridge-bars *k*, secured on the inner surface of the end plate, as shown in Figs. 1 and 3. Said bridge-bars are placed edgewise, and thereby the clay after having passed them is enabled to close up again, and the tiles on passing from the apertures present a smooth and unbroken surface.

The end plate, K, is made movable, and it is held in place by hooks *l* or other suitable fastenings. By removing the end plate access

can be had to the chambers F F' whenever it may be desirable.

By this machine tiles can be made with comparatively little power, and a large quantity of work is effected without putting the working parts to a severe strain.

We claim as new and desire to secure by Letters Patent—

1. The use in a tile-machine of two plungers, each operating in a separate chamber which communicates with the mixing-box, said plungers being applied in combination with a double

crank, substantially as and for the purpose set forth.

2. Casting the arms of the mixer separate, each with its distinct hub, substantially as and for the purpose described.

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Witnesses:

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