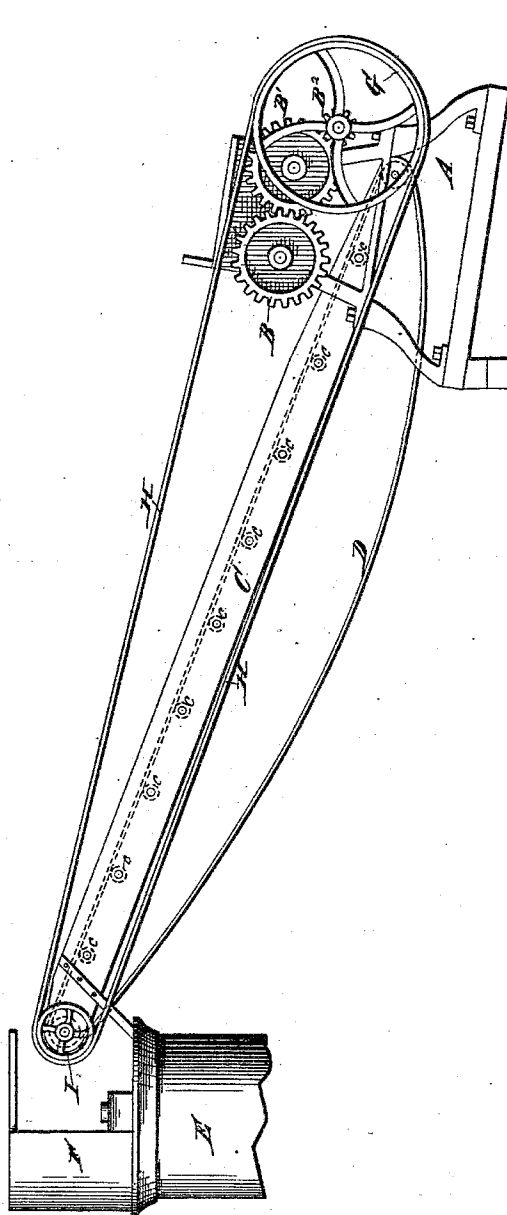


(No Model.)

J. S. SMITH.
ART OF MAKING TILES, &c.

No. 295,298.

Patented Mar. 18, 1884.



WITNESSES

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JOHN S. SMITH, OF JACKSON, MICHIGAN, ASSIGNOR OF ONE-HALF TO
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ART OF MAKING TILE, &c.

SPECIFICATION forming part of Letters Patent No. 295,298, dated March 18, 1884.

Application filed January 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. SMITH, of Jackson, in the county of Jackson and State of Michigan, have invented a new and useful Improvement in the Art of Making Tile, Pipe, &c., from Clay; and the following is a full, clear, and exact description thereof, by which persons skilled in the art may work or operate the same.

10 In operating in clay for the manufacture of tiles, pipes, or bricks, the clay, when dug from the earth, is first tempered to bring it into the proper condition as to moisture for working, it being necessary that it shall be sufficiently
15 moist to be adhesive in all those operations in which such clay is employed. It is then carried to the top of the pug-mill and poured into the cylinder, falling upon radial rotating blades, by which it is "pugged" and
20 forced down through the cylinder, being thus brought into proper condition to be forced into the dies. It is to this preparation of the clay, preliminary to its being molded, that my invention particularly relates. When the
25 clay is shoveled or otherwise elevated into the mouth of the pug-mill, being damp and adhesive, it is liable to gather on the flat upper surfaces of the blades and hang there, instead of being carried down through the cylinder,
30 to be acted upon by the rotating blades.

My invention has for its object the prevention of this retardation, and thus increasing the efficient work of the pug-mill; and it consists in first forming the clay into balls
35 and feeding it in this condition into the pug-mill. The balls, instead of lodging on the blades, fall freely between them, and are thus exposed to their edges, and the clay is rapidly pugged and forced down through the cylinder.
40

I have shown in the annexed drawing, in a single figure, a simple and yet efficient mechanism adapted to making the balls, and at the same time feeding them to the pug-mill. This
45 consists simply of a rapidly-rotating endless belt, to the lower end of which the moistened clay is supplied, and from the upper end of which it is thrown into the pug-mill.

As a mere elevator, there is nothing novel in this, for it is common to use endless belts
50 having cleats across their face, and traveling at a speed of about fifteen feet per minute, for the purpose of elevating the clay to the mouth of the pug-mill. As the cleats give support to the clay on the belt, and its slow
55 movement does not agitate the particles composing the mass, they will be carried up and delivered in the same condition in which they were received. I use a belt having no
60 cleats or other irregularities upon its surface, and drive it so that, instead of the slow motion ordinarily imparted to it, it moves at a velocity of about four hundred and fifty feet
65 per minute. The rapid movement of the belt and its inclination cause the clay to gather into irregular masses, which are carried up
the belt and thrown from its upper end, with
70 more or less force, into the pug-mill, where their form causes them to be more perfectly acted upon by the rotating blades than is the case where the clay is introduced into the mill in its usual condition.

In the annexed drawing, A is the frame of the ordinary clay-crusher, which may or may not be used.
75

B B' are spur-wheels actuating the rolls, and the latter at the same time drives a small pinion, B², on the shaft of pulley G, which, through the belt H, drives the small pulley I on the shaft of the drum at the upper end of
80 the endless belt D, which should have a velocity of about four hundred and fifty feet per minute, and is arranged to elevate the clay and throw it into the mouth of the pug-mill E.
85

F is a shield intended to arrest the lumps of clay and prevent their being thrown over the mill.

The speed indicated I have found experimentally to work satisfactorily; but it will be
90 understood that that precise speed is not essential, nor is my claim limited to the use of the machine shown, as other means of balling the clay can be readily devised.

What I claim as my invention, and desire
95 to secure by Letters Patent as an improve-

ment in the art of working in clay in the manufacture of tile, &c., is—

1. The process of balling damp clay by casting it upon a rapidly-traveling plane surface, by the action of which it is gathered into rounded masses, substantially as set forth.
2. First balling and then pugging the moistened clay, substantially as set forth.

As witness my hand in the presence of two subscribing witnesses.

JOHN S. SMITH.

In presence of—

JOHN G. MUNDY,
JOSEPH H. COBB.