S. & D. Mill,

Tile Machine.

No. 33,830. Patented Aug. 17. 1862

Fig: 1.

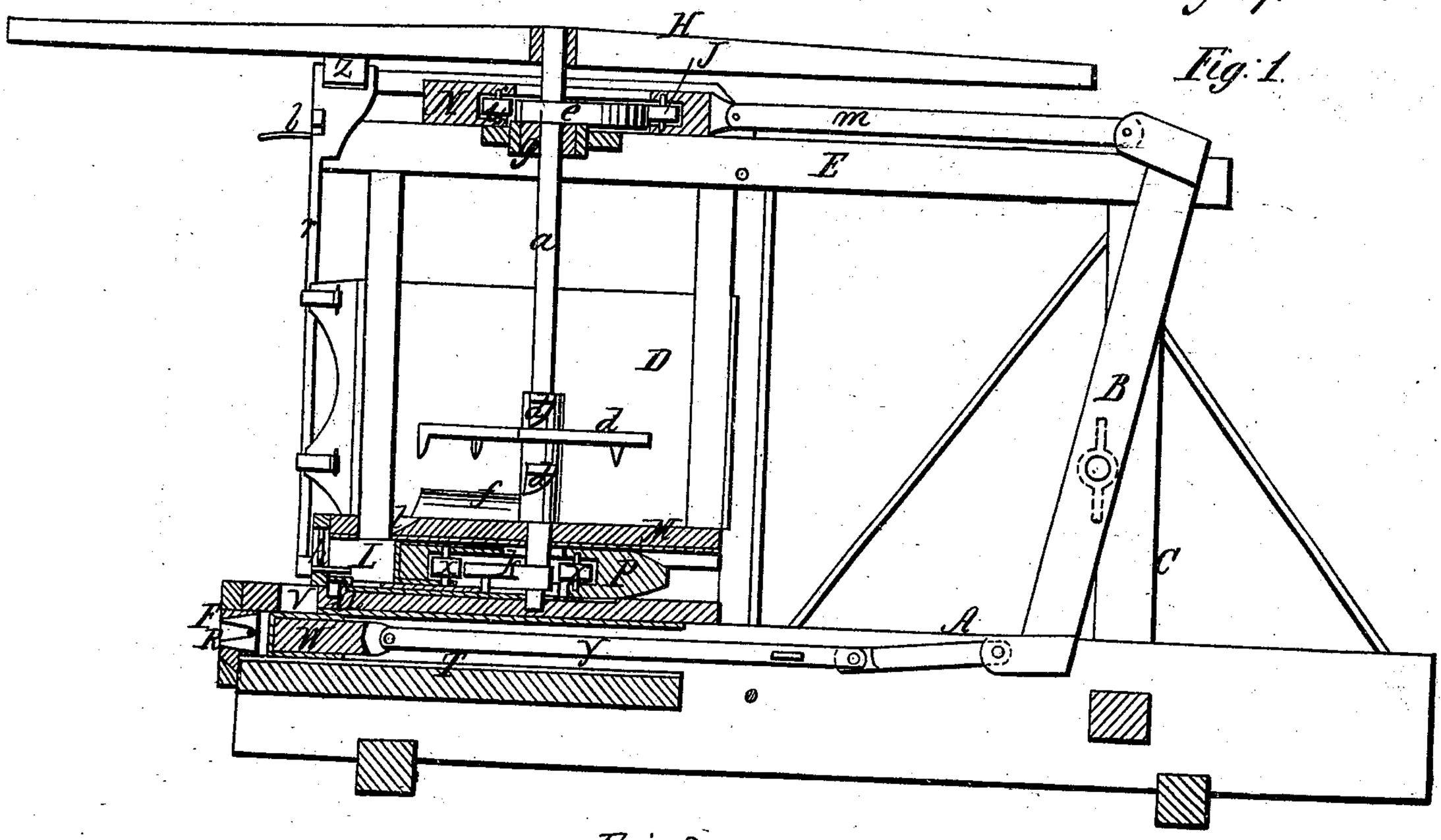
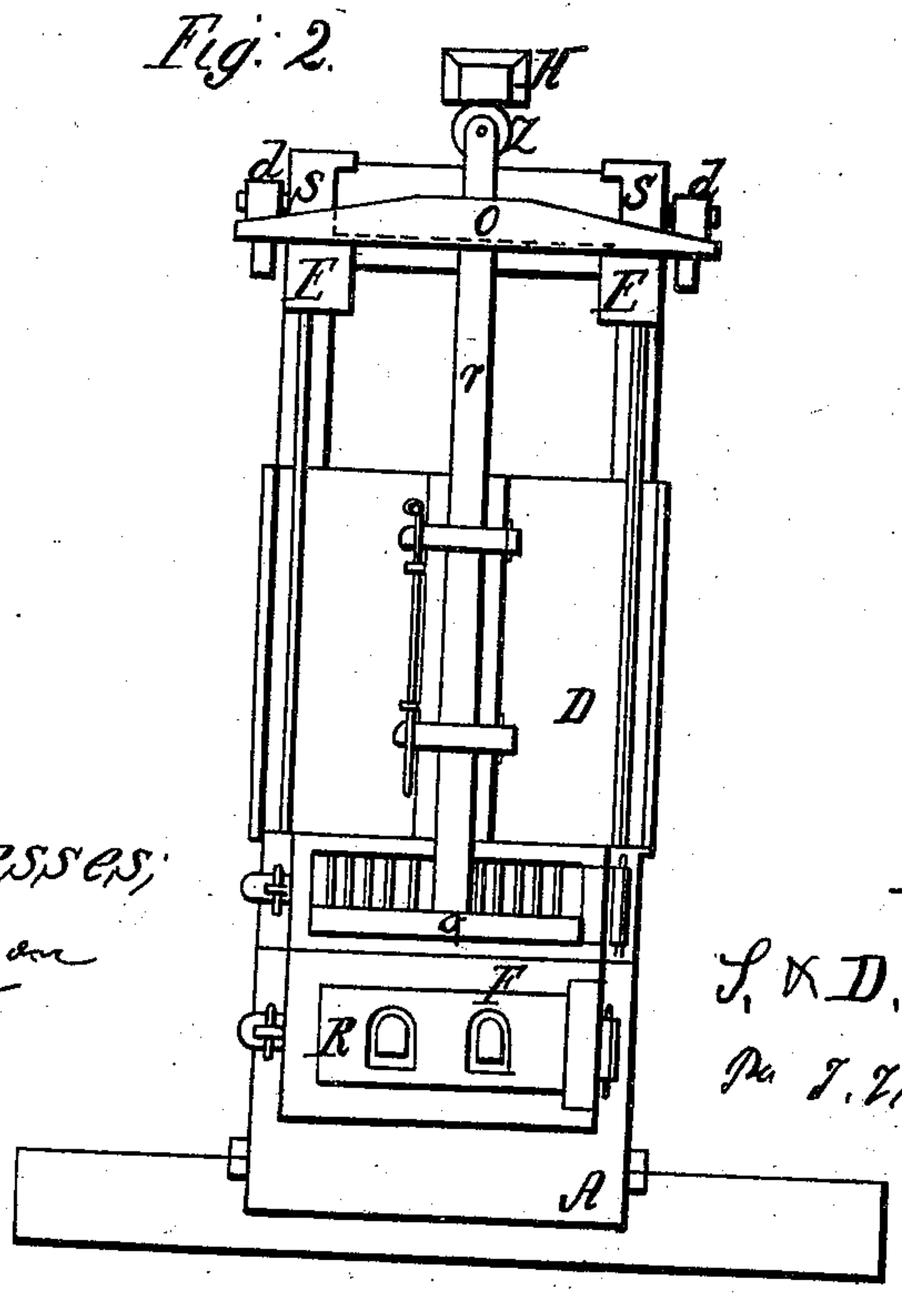


Fig: 2.



Witnesses;

C. A. Alexander

J. V. White

Inventors;

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Per T. A. Alexander Atty

United States Patent Office.

SOLOMON NILL AND DANIEL NILL, OF COVINGTON, OHIO.

Letters Patent No. 93,830, *dated August* 17, 1869.

IMPROVED TILE-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, SOLOMON NILL and DANIEL NILL, of Covington, in the county of Darke, and State of Ohio, have invented certain new and useful Improvements in Tile-Mills; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents a vertical longitudinal section of our machine.

Figure 2 is an end view of the same.

The nature of our invention consists in the employment of a rake, for cleaning the screens from gravel, said rake being operated substantially in the manner and for the purpose described; also in the employment of cams on the main shaft, for operating such devices, and in the manner hereinafter set forth.

In the annexed drawings—

A represents the frame of our machine.

B designates a vertical beam, pivoted to the studs C, the said studs being well braced to frame A.

D represents a chamber placed near one end of frame A, and extending about two-thirds of the distance upward from frame A to the plates E.

a is a shaft, the lower end of which plays in the floor of chamber D.

The upper portion of the said shaft, after passing through and playing in block *g*, extends sufficiently far upward to penetrate the bar H, by which the machine is operated.

Directly above block *g* is placed the cam *e*, which, in its reciprocating motion, works alternately against the two pulleys *i* and *j*.

N represents a slide, with a slot in it, through which the shaft *a* passes.

The inner end of slide is pivoted to pitman *m*, the other end of said pitman being pivoted to rocking shaft B.

The slide N is made to work in groves, cut in the two bars *s s*, which are fastened to the upper surface of plates E.

On shaft *a*, and within chamber D, are secured several toothed bars *d*, the design of which is to mix thoroughly the mortar before it is forced into the die R.

In addition to the toothed bars above described, a scraper, *f*, is attached to the shaft *a*, directly above the floor M.

The said scraper is edged at its lower side, for the purpose of removing the mortar from the surface of floor M, and forcing it through the opening *t*, into the cavity L.

The moment the mortar reaches the cavity L, it is exposed to the action of follower P, the said follower being subjected to a reciprocating motion from cam *k*.

Friction-rollers *x x* are pivoted in follower P, to facilitate the motion of the cam *k*.

The follower P, in acting on the mortar in cavity L, will force it through screen *h*, into opening V, and thence into cavity T, where it will be subjected to the action of plunger W, which is attached to the end of pitman *y*.

The plunger W will force the clay through the die R, and thus complete the process of making tiles.

Should there be gravel in the mortar, it will be driven, by the action of follower P, into the slot *u*, at the bottom of cavity L, and can be driven thence by an iron rod, which can be inserted at one end of said slot, and the gravel forced out at the opposite end.

q represents a rake, secured at the lower end of vertical shaft *v*. The object of the rake is to keep the screen from becoming clogged.

k^2 is a block, secured to the front end of chamber D. Said block is provided with a groove, in which the rake-shaft slides, it being retained in place by means of the hinged loops m^2.

The object in hinging these loops is to enable the rake to be removed when desired.

O is a cross-bar, secured near the top of rake-shaft I, and

z, a pulley.

The object of these devices will be fully seen presently.

H represents the bar or sweep, secured to the shaft *a*.

By the means of said sweep the machine is operated, for by every complete circuit of said sweep each of the pitmen will have one forwaad and one backward motion, and the rake, one downward and one upward motion, produced by means of the projection on the under side of the sweep pressing on the pulley *z*, upon shaft *r*, and forcing said shaft downward.

The shaft, when down, will be raised by means of the two springs *b b*.

The springs *b b* will be secured to the end of each of the bars *d*, which are bolted to the plates E.

In order to admit of the die R being changed, it is confined in its place by the hinged frame F, the interior of which is bevelled, so that when the die is inserted in its place, it will be flush with the external surface of the said frame F.

Having thus described our invention,

What we claim, and desire to secure by Letters Patent, is—

1. The rake *q*, operated by shaft *r*, and provided with cross-bar *o*, in combination with springs *b b*, all arranged for the purpose of cleaning the meshes of the screen *h*, substantially as described.

2. The arrangement described of cams *e k*, on shaft *a*, for operating follower P and plunger W, substantially in the manner herein set forth.

In testimony that we claim the foregoing as our own, we affix our signatures, in presence of two witnesses.

SOLOMON NILL.
DANIEL NILL.

Witnesses:
D. J. MARTIN,
JOSEPH MARLIN.