

2 Sheets—Sheet 1.

PUG MILL FOR TEMPERING CLAY.

Fig. 1. Patented Aug. 1, 1882.

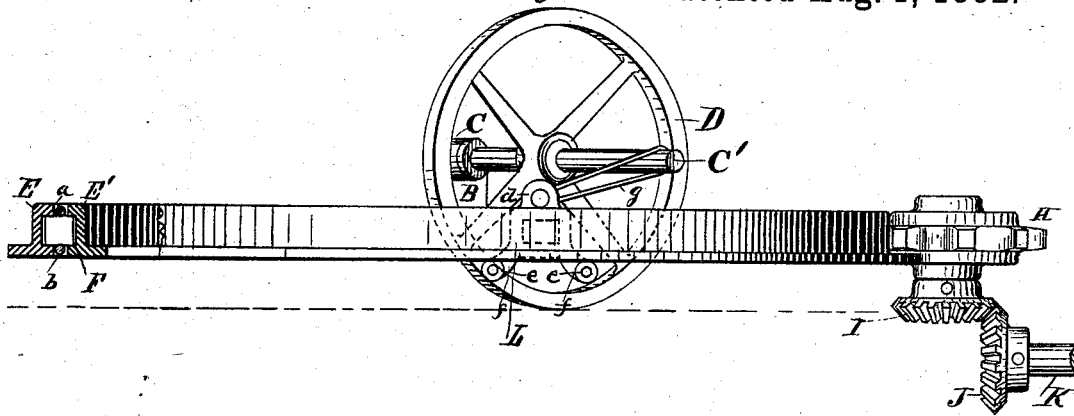
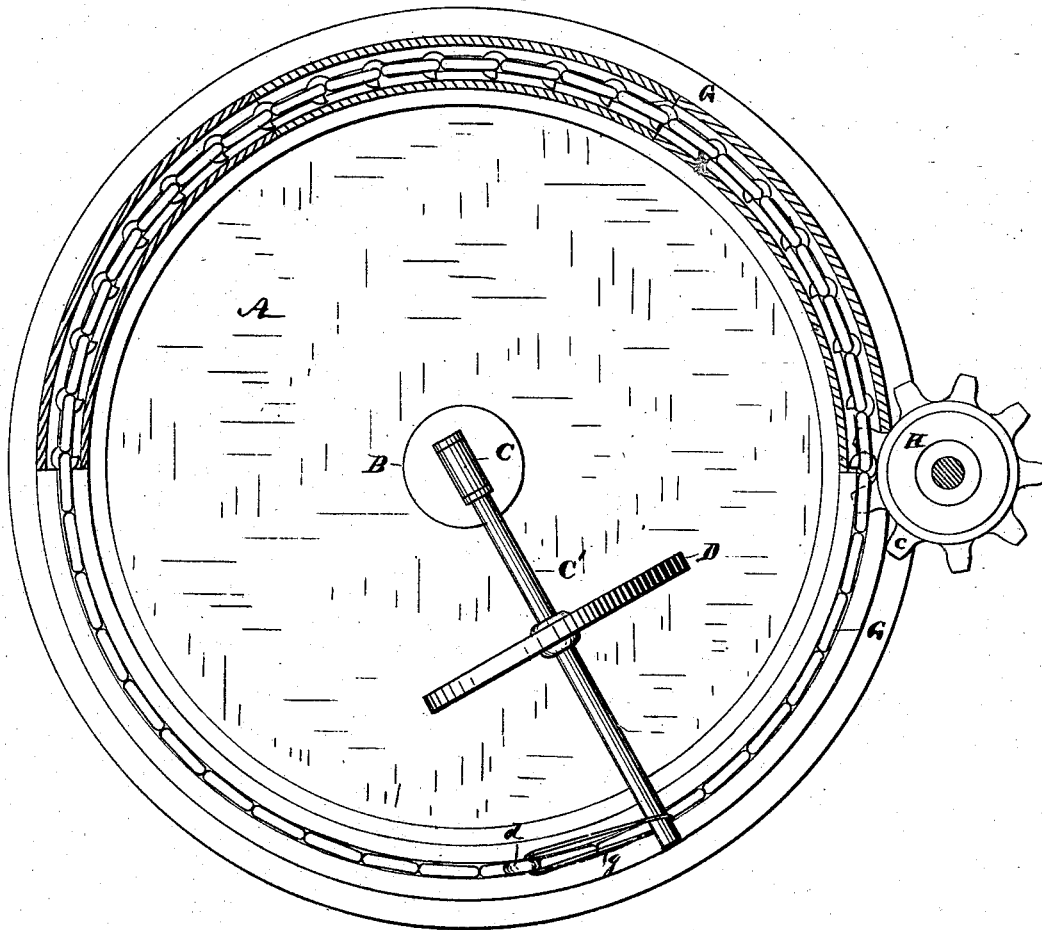


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

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PUG MILL FOR TEMPERING CLAY.

No. 261,840.

Patented Aug. 1, 1882.

Fig. 3.

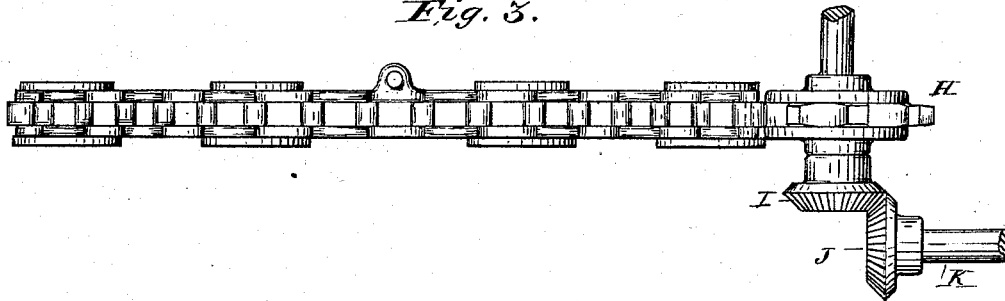
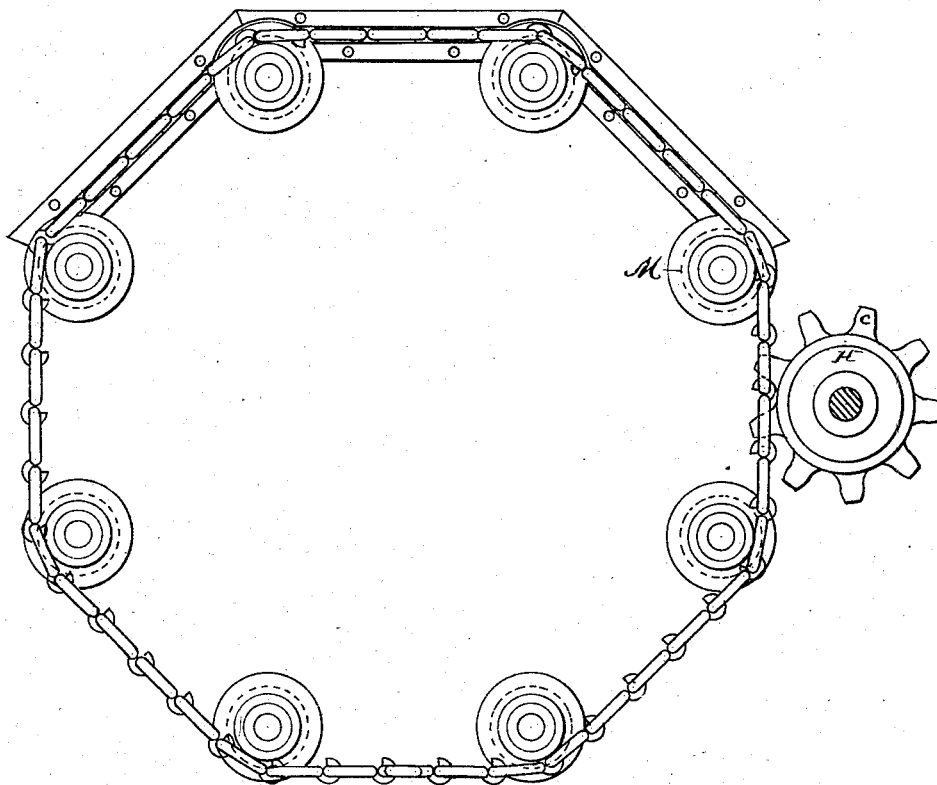


Fig. 4.



WITNESSES

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PUG-MILL FOR TEMPERING CLAY.

SPECIFICATION forming part of Letters Patent No. 261,840, dated August 1, 1882.

Application filed June 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES EVANS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Pug-Mills for Tempering Clay, &c.; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in pug-mills and in devices for operating the same; and my invention consists in certain details of construction hereinafter more fully set forth, and pointed out in the claims.

In the drawings hereunto annexed, Figure 1 is a view partly in perspective and partly in section. Fig. 2 is a plan view with portions broken away to show the groove in which the endless driving-chain is located. Fig. 3 is a side elevation of a modified form of my device, and Fig. 4 is a plan or top view of the same.

In pug-mills of the class to which my invention appertains—viz., the class in which a tempering-wheel is used—much inconvenience and annoyance have arisen from the fact that the mechanism which drives them has necessarily been placed in such positions as to interfere with the filling and discharging of the mill with clay, &c., from the fact that frame-work is required for the support of such machinery; and, further, in machines in which the tempering-wheel has been driven by an endless chain passing over sheaves or friction-wheels located on the top of the wheel-pit the chain and sheaves or friction-wheels are in the way, and interfere with the workmen in discharging and filling the pit; and, furthermore, the chain and sheaves are liable to become clogged with clay, and become inoperative until such clay has been removed, which necessitates loss of time and labor.

By my construction I obviate all of the above objections.

I will now proceed to describe the construction and operation of my invention.

A designates the pit or bed in which the clay or other material to be operated upon is placed, and it may be of any diameter or height desired, and constructed of metal, stone, wood, or any suitable material. The pit is provided with a standard or projection, B, at its center to the top of which is secured the swivel loop or pivot C, to which the axle or shaft C', which carries the tempering-wheel D, is secured.

On top of the clay-pit are secured two circles (an inner and an outer) composed of segments of metal or wood of the form shown, such being indicated by E and E'. I may, however, find it convenient to use the ordinary I-beams for this purpose. These sections, when properly placed together, form a chamber or cavity, F, between the inner and outer sections, in which an endless chain is caused to travel, and the spaces *a b* between such sections serve as a guide to steady vertical links in the endless chain G, and also the projections on the connecting-link, to which the pug-wheel axle is secured, as will more fully hereinafter appear. It will also be noted in this connection that the space *a* on top of the rim is filled with the upper portion of the vertical links of the endless chain and the projection on the link L, thus filling, in a measure, the space *a*, and prevent the clay from falling into this chamber to clog the endless chain or interfere with the working of the same.

To more effectually close or cover the space *a* a flap of leather or rubber may be secured to one side of the rim, so as to operate much as a valve does in pneumatic railways.

The endless chain G is composed of open links, as shown, and may have mounted thereon, at suitable intervals, friction-rollers to diminish the amount of friction caused by the impingement of the chain on the sides of the groove or channel. Friction-wheels may, however, be placed within the wall of the channel in the segment E' for the same purpose.

One side of the outer girder or rim, E, is open to admit of the teeth *c* of a sprocket-wheel, H, to engage with the open links of the endless chain, and to impart motion thereto.

The lower end of the shaft on which the sprocket-wheel H is mounted is provided with a bevel-gear wheel, I, which engages with a

bevel-gear wheel, J, on the shaft K, driven by any suitable power.

One of the sections or links L of the endless chain is provided with a projection, *d*, which extends through the slot *a* above the upper surface of the rim, and is connected to the axle C', on which the pug-wheel is mounted, by means of a link, *g*, and by which the wheel is drawn around in the pit A.

The lower end of the link-section L is provided with two arms, *ff*, which extend through the cavity or slot *b* of the rim, said arms being provided with friction-wheels *ee*, which impinge on the under side of the rim, thereby reducing the friction, and at the same time forming a substantial and rigid connection, to which the axle C' is attached by means of the link *g*.

It is obvious that the endless chain may be provided with any desired number of links L, and any desired number of wheels and axles used in the process of pugging the clay.

In Figs. 3 and 4 I have shown the chain passing around sprocket-wheels or sheaves; but this construction I do not propose to apply to pug-mills, for the reason that the chain and sheaves are in the way of the workmen, and are, moreover, liable to become clogged up; but I do propose to use this form of construction as a motor to drive a series or any number of vertical shafts which can be secured to the sheaves or sprocket-wheels M.

The sheaves or sprocket-wheels may be provided with central shafts and bevel-gearing for

engagement with bevel-gearing on horizontal shafts, (not shown,) and thus power communicated to any desired number of shafts and in any desired direction.

I am aware that it is not broadly new to employ an endless chain for driving the wheel of a pug-mill, and such I do not claim; but

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

1. In a pug-mill, the combination of the hollow or chambered rim and endless chain G, located therein, with the sprocket-wheel H, bevel-gears I and J, and shaft K, as set forth.

2. In a pug-mill, the hollow rim composed of segments of metal or wood to form a chamber for receiving an endless belt which drives the pug-wheel, as set forth.

3. The endless chain G, adapted to travel within the hollow rim, and provided with a link, L, a portion of which projects above the upper edge of the rim, and to which the axle of the pug-wheel is attached, whereby motion is imparted in a circular direction to the pug-wheel, as set forth.

4. The link L, provided with the projections *d* and *ff*, and friction-wheels *ee*, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES EVANS.

Witnesses:

ROBT. H. HINCKLEY,
H. S. P. NICHOLS.