

(No Model.)

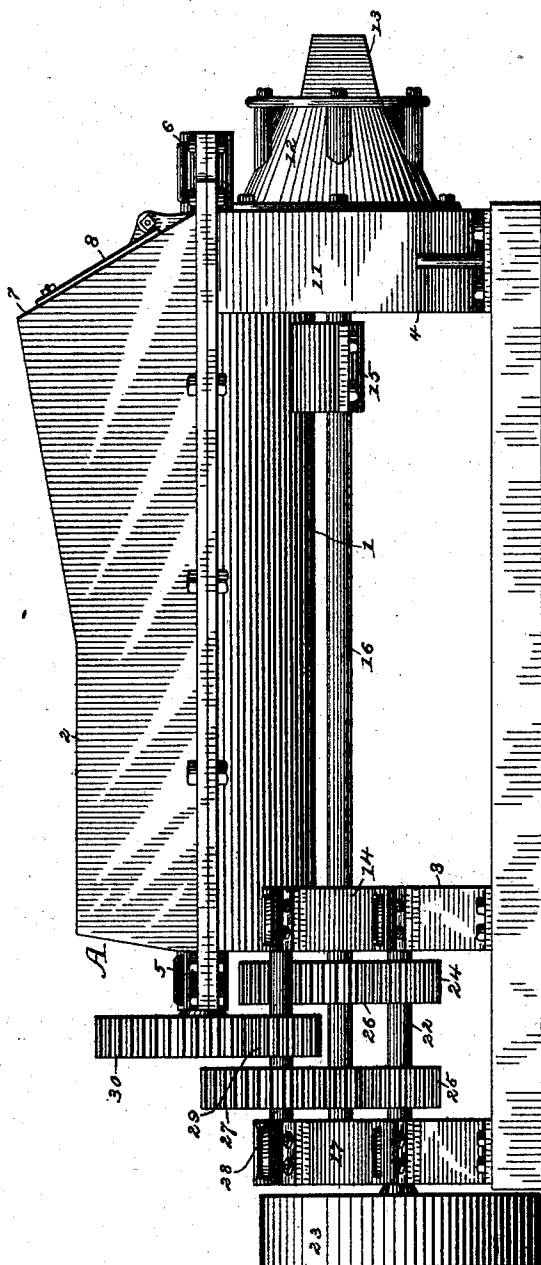
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G. S. TIFFANY.
CLAY WORKING MILL.

No. 518,636.

Patented Apr. 24, 1894.

Fig. 1.



WITNESSES

Wm. M. M. M.
B. W. Sommers.

INVENTOR

George S. Tiffany

by

A. G. Newman,
Attorney.

(No Model.)

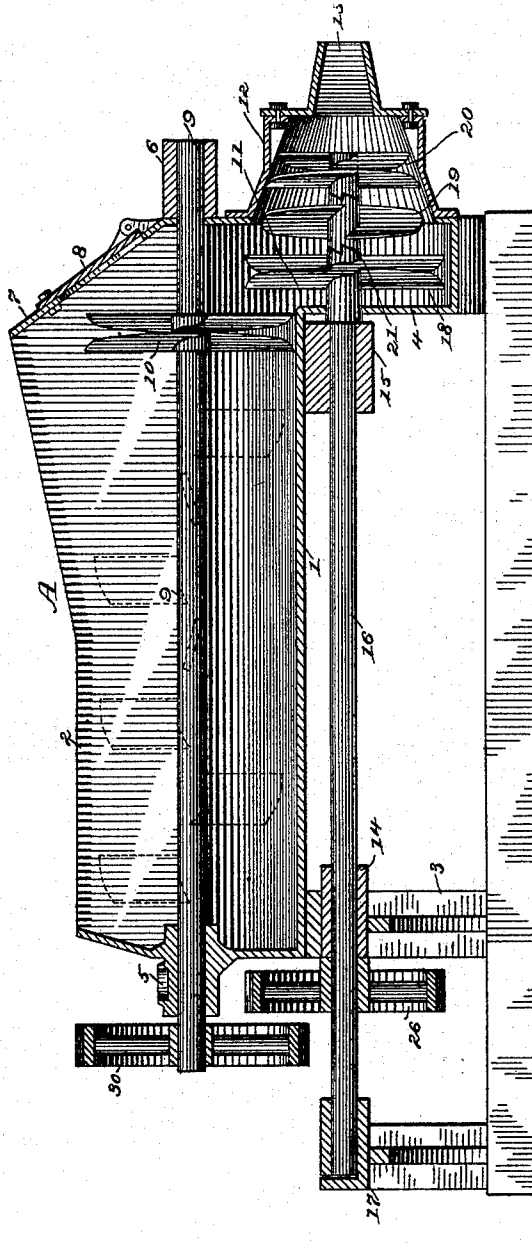
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CLAY WORKING MILL.

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Fig. 2.



WITNESSES

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(No Model.)

3 Sheets—Sheet 3.

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Fig. 4.

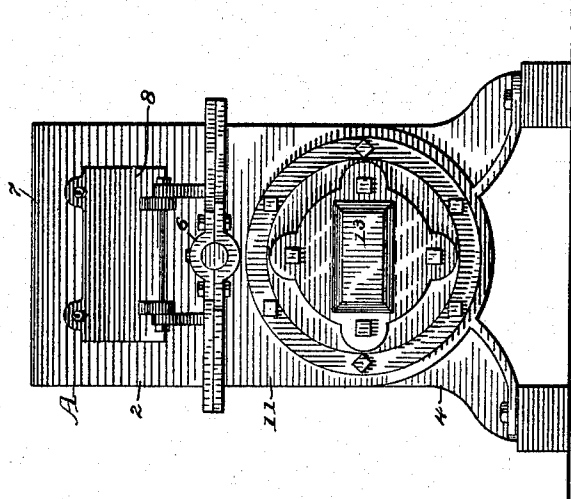
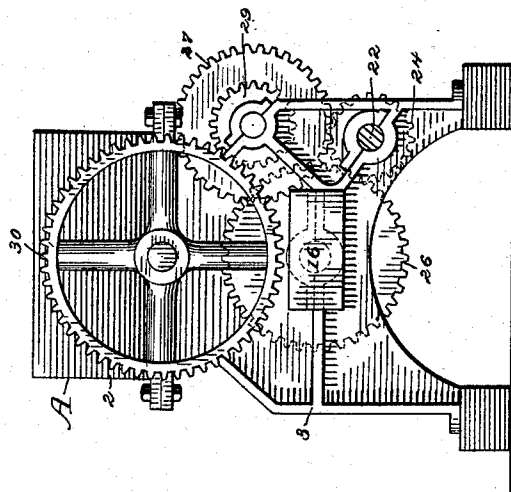


Fig. 3.



WITNESSES

Wm. Messer.
B. H. Sommer.

INVENTOR

George S. Tiffany.

by *A. G. Huffman,*
Attorney

UNITED STATES PATENT OFFICE.

GEORGE S. TIFFANY, OF TECUMSEH, MICHIGAN.

CLAY-WORKING MILL.

SPECIFICATION forming part of Letters Patent No. 518,636, dated April 24, 1894.

Application filed March 18, 1890. Serial No. 344,335. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. TIFFANY, a citizen of the United States of America, residing at Tecumseh, in the county of Lenawee and State of Michigan, have invented a new and useful Clay-Working Mill, of which the following is a specification.

My invention has relation to improvements in clay-working machines of that class used to temper and prepare the material preparatory to being forced through the formers or dies constituting a part of the machine.

The object of my invention is to provide in operative combination an open top pug-mill and a feed-auger or mechanism for forcing the clay into the dies.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a side view of the machine. Fig. 2 is a central longitudinal vertical section through the mill. Fig. 3 is an end view, showing the actuating gearing. Fig. 4 is an end view showing the inclined end of the mill, and the die.

A designates the shell or casing of the pug-mill. This consists of a substantial metal casing, which for convenience of construction and assemblage, is shown as made of upper and lower sections 1, 2, substantially as shown, the whole being supported by end supports 3, 4. The casing is formed with bearings 5, 6, projected from the ends, which constructions give a clear space within the shell, and obviates the necessity of bearings being arranged within the casing to support the pug-shaft. At the same time the elongation of the bearings tends to prevent vibrations of the shaft. The upper section 2 of the casing is open on the top for the greater part of its length and for the distance taken up by the line of blades on the pug-shaft, and has upwardly inclined side edges in the direction the clay is moved by the mill, and the end 7 is formed to incline from the top to the shaft, as shown, and is provided with the door 8, hinged thereto. This inclined end construction gives the clay as forced forward by the mill a downward movement instead of impacting against a vertical wall as heretofore; so that as the clay reaches the limit of the mill it drops freely, or is forced by the

mill, on the augers below. The upwardly inclined side-edges of the open-top casing prevent the clay from being carried over the sides in the tendency to pile up at that end of the mill. In the bearings of the casing is mounted the pug-shaft 9, on which are arranged a series of mixing-blades 10, which terminate substantially on a line with the inner wall of the feed chamber opening vertically downward from the bottom of the casing. This feed-chamber is designated by 11, and may be cast as part of the casing or made separate therefrom and bolted thereto. In either case it opens vertically into the casing, so as to permit the upper portions of the first set of blades on the auger to project upward into the casing, as shown, to act directly on the clay being moved into the end of the casing above. On the end of the casing is mounted a feed-cylinder 12, which opens from the feed-chamber 11, and has fixed to it the usual dies or formers 13. On the bottom of the casing, and in the support 3, are formed bearings 14, 15, for the auger-shaft 16. This shaft 16 is mounted in these bearings, and has its end extended and journaled in a support 17. This shaft at its forward end projects through the inner wall of the feed-chamber and into the feed-cylinder, substantially as shown in Fig. 2 of the drawings, and has detachably mounted thereon the sectional augers 18, 19, 20. These augers are formed with elongated hubs 21, the meeting ends of which are notched to intersect and thus hold the series together. They are fastened on the shaft by any usual means. The section 18 of the augers, is arranged within the feed-chamber of the casing and projects into the pug-mill, and operates as heretofore mentioned to take the clay from the mill and force it forward to be engaged by the next auger, from where it is carried through the feed-cylinder into and forced through the die.

Motion is communicated to the mill and auger-shaft, by the following described means:—A shaft 22 is mounted in bearings in the supports 3 and 17, on which is a band pulley 23, on which may be arranged a belt leading to the power, not shown. On the shaft 22 are gear-wheels 24, 25, the former of which meshes with a gear-wheel 26 on the shaft 16; the gear 25, meshes with a gear-wheel 27 on a shaft 28,

in bearings on the supports, and this shaft carries another gear-wheel 29, which meshes with a gear-wheel 30, on the extended end of the pug-shaft. This arrangement of the gearing gives to each shaft of the mill an independent connection to the power gearings so that the strain of the shaft is not increased by connection to the other. It will be perceived that the auger shaft is supported on bearings for the greater part of its length, which prevent vibrations of the shaft. When the shaft vibrates it results in wave lines or streaks in the ware. The elongated hubs of the augers separate the wings of the augers, and permit the clay to adhere to the walls of the chambers which prevent it from turning with the augers, and thus receive the full benefit of their action.

Having thus described my invention, what I claim is—

1. The open top casing A, formed with exterior bearings at its ends, upwardly inclined side-edges, a forward end inclined inwardly from bottom to top and provided with an open-

ing, and a door hinged to the inclined end to close the opening, substantially as and for the purpose specified.

2. The combination of the open-top casing A having a forward end inclined inward from bottom and extending over the end of the pug-shaft to top, a feed-chamber opening vertically downward from the casing below the said inclined end, the pug-shaft mounted in the casing with its last mixing blade arranged substantially on a line with the inner wall of the feed-chamber, the auger-shaft mounted in bearings under the casing, and having its forward end projecting into the feed-chamber, augers on the projecting part of the shaft, and means for imparting motions to the pug-shaft and auger shaft, as specified.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

GEORGE S. TIFFANY.

Attest:

J. L. LEONARD,
W. S. HIGHT.