

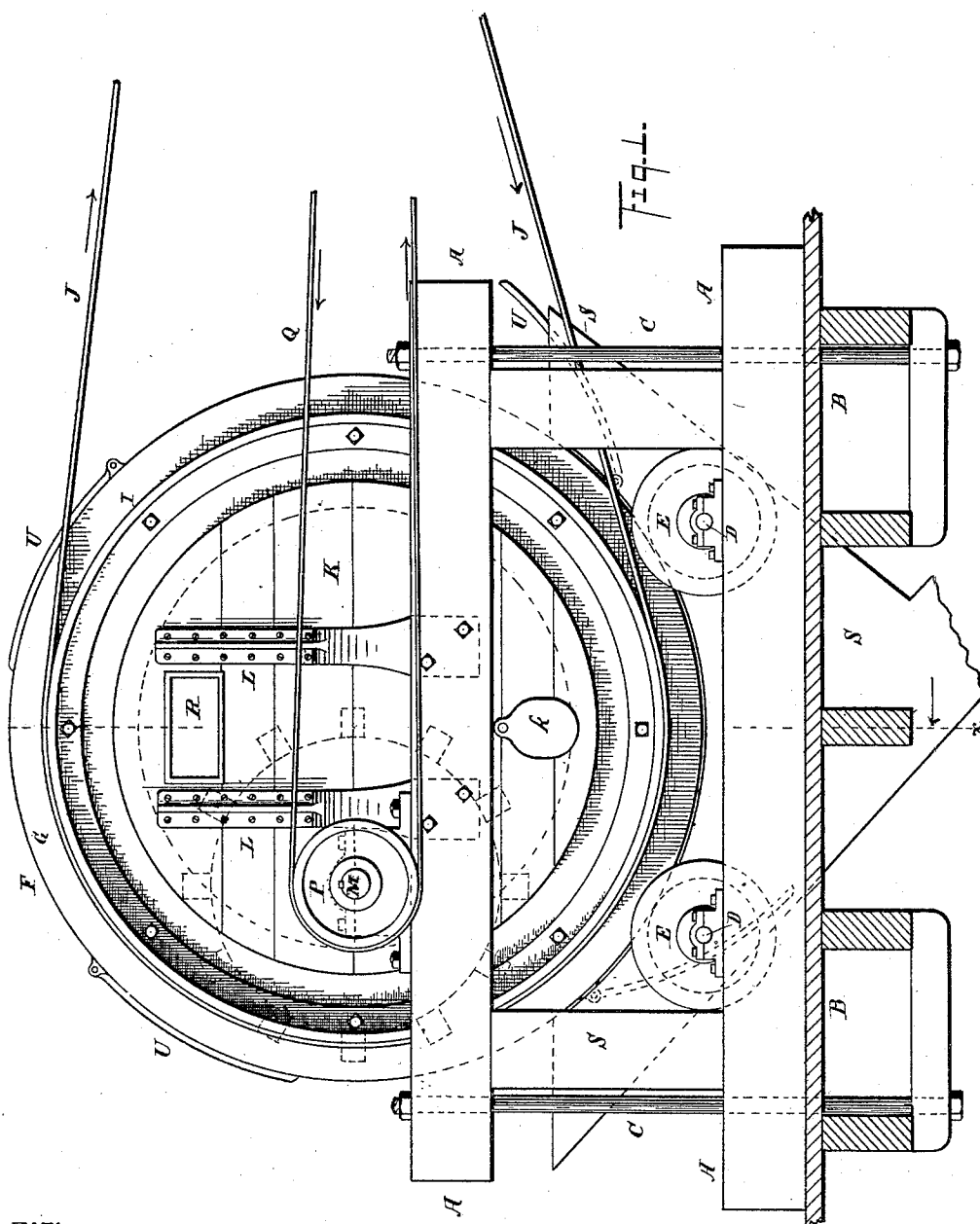
(No Model.)

2 Sheets—Sheet 1.

H. B. CAMP.  
CLAY DISINTEGRATING MILL.

No. 452,896.

Patented May 26, 1891.



Witnesses.  
Belle S. Linnie.  
C E Humphrey

*Inventor*  
*Horace B. Camp,*  
*by C. P. Humphrey,*  
*Attorney*

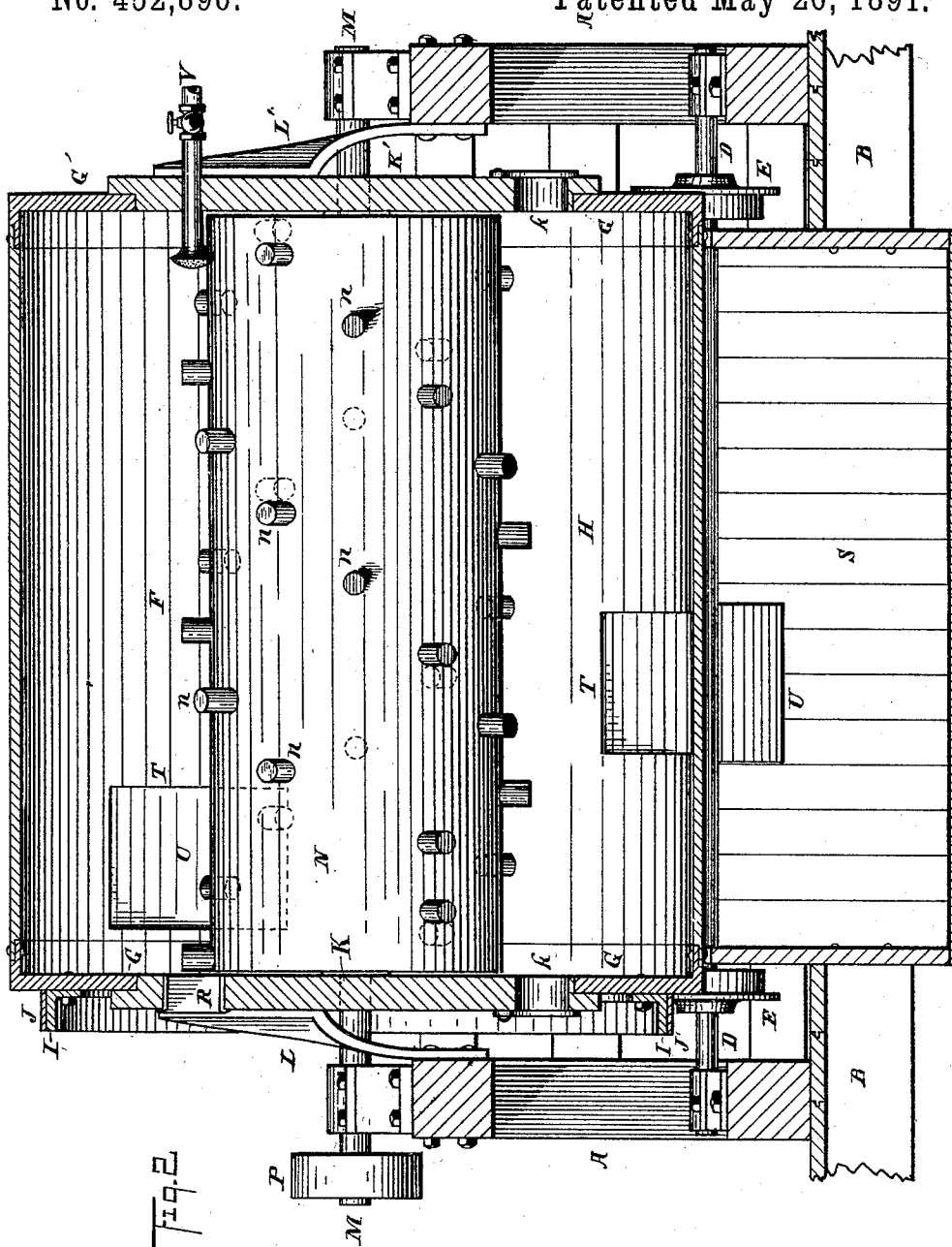
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# UNITED STATES PATENT OFFICE.

HORACE B. CAMP, OF CUYAHOGA FALLS, OHIO.

## CLAY-DISINTEGRATING MILL.

SPECIFICATION forming part of Letters Patent No. 452,896, dated May 26, 1891.

Application filed July 21, 1890. Serial No. 359,356. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE B. CAMP, a citizen of the United States, residing at Cuyahoga Falls, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Clay-Tempering Machines, of which the following is a specification.

The object and purpose of my invention is to produce an improved machine for tempering clay preparatory to its use in brick, tile, sewer-pipe, or other forming or molding machines, and is ancillary and germane to a machine for disintegrating clay, for which I have made application for Letters Patent under date of May 5, 1890, Serial No. 350,601.

To this object and purpose my invention consists in certain peculiar and novel construction, combination, and arrangement of parts hereinafter described, and then specifically pointed out in the claims, reference being had to the accompanying drawings, forming a part of this specification.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is an end elevation of a machine embodying my invention, and Fig. 2 a central vertical longitudinal section of the same at the line  $x x$  of Fig. 1.

Referring to the drawings, A is a frame, preferably of wood beams, as shown, and securely fastened to a floor B by bolts C, as shown, or by other equivalent or preferred device. Journaled in suitable bearings on this frame are flanged rollers E, preferably mounted on parallel shafts D. Resting and revolvably mounted on the rollers E is a drum F, consisting of two oppositely-disposed annular disks G G', preferably of cast metal, united by a shell or hoop H, preferably of sheet metal, bolted to inner annular flanges extending from said disks. This drum, as shown, is revolved by means of a belt J, which runs on an annular flange I, attached to the disk G, and is driven from any convenient pulley; but this method of revolving the drum is not essential, as it may be accomplished by other means, as hereinafter described. In opposite end openings of this drum are heads or covers K K', respectively attached to the frame A by brackets or straps L L', which covers serve to prevent the es-

cape of material being subjected to the action of the machine. Hand-holes in the covers K K', covered with swinging doors  $k k'$ , permit the condition of the material within the drum to be ascertained, and a door R in the cover K permits material to be fed to the drum. The covers K K' are represented in the drawings as being rigidly attached to the frame A by the brackets L L'; but in many cases it will be found advantageous to suspend them loosely either by these brackets or some similar device, so that they may yield slightly to inequalities in the shape of the inner periphery of the disks G G' or the motion of the drum in its revolutions.

Journaled in suitable bearings in the frame A and passing through openings in the covers K K' is a shaft M, which bears outside of the drum a pulley P and inside the drum a solid cylinder N, inserted in and projecting from which are radial pins  $n$ , and which, for the purpose of this application, may be denominated the "mixer."

The shaft M is mounted eccentric to and parallel with the axis of the drum F, and when the cylinder N bears the relation to the drum F shown is preferably in the same horizontal plane. By this arrangement the moistened clay as it is carried upward on the inner periphery of the drum F is encountered by the pins  $n$  and thrown backward, as hereinafter described.

A belt Q drives the pulley P from any convenient power in a direction opposite to the motion of the drum. Suspended by the frame A below the drum F is a hopper S, terminating at the bottom in a delivery-spout, through which the tempered clay is discharged.

In the periphery of the drum F are a series of openings T, disposed at intervals lengthwise of and about the drum, each closed with a hinged door U, the hinges of the doors being in the direction of the revolution of the drum. These doors are fastened when desired by latches (not shown) of any desired or approved pattern, and when these latches are released the descending doors, when about the horizontal plane of the axis of the drum, will open by gravitation, while the opposite ascending doors will close. Through the cover K' is a pipe V, connected with a water-supply under pressure, and terminating in a rose or spray-

nozzle, the object and purpose of which is to sprinkle and moisten the clay in the drum and which pipe is provided with a gate by which the supply of water may be regulated.

5 This rose may be placed at any desired point in the drum, and in some cases it will be found advantageous to provide two or more or to substitute a finely-perforated pipe running across the drum.

10 In operation the doors U are closed and latched, and the drum F and mixer N are revolved in opposite directions, the former slowly and the latter rapidly, their relative degrees of speed will be determined by the character, condition, and requirement of the 15 clay to be tempered. The clay, preferably disintegrated or ground, is then fed into the drum through the door R and moistened by water from the pipe V until a sufficient charge 20 has been placed in the drum and properly moistened. During this process the moistened clay is continually carried upon the inside periphery of the drum until it encounters the pins *n*, by which it is violently stirred 25 and thrown back upon the coming mass, and this is continued until it is properly tempered and perfectly homogeneous, when the latches of the doors U are released and the tempered clay falls through the openings T 30 into the hopper S.

As hereinbefore suggested, I do not attempt in this application to give the precise relative proportions of the different parts or their exact positions, as these must of necessity differ with the different requirements of 35 the machine and as experience may determine to be best—as, for instance, the cylinder N may be increased in size or reduced to the shaft M, and as a consequence the pins *n* will differ in length and mode of attachment, as 40 they may in shape, and the flange I and belt J may be omitted and the power applied directly to the pulley P, and thence by any well-known device, as sprocket wheels and chain, 45 to the rollers E, without departing from my invention, which I claim to be—

1. A clay-tempering machine consisting of a revolubly-mounted horizontal drum having

peripheral discharge-doors, a mixing-cylinder having radial pins revolubly mounted inside 50 of, parallel with, and axially eccentric to said drum in bearings outside thereof, and means, as belts, for independently simultaneously revolving said drum and mixing-cylinder in 55 opposite directions with different degrees of speed, substantially as shown and described.

2. In a clay-tempering machine, the combination, with a revolving drum having peripheral discharge-doors, and a mixing-cylinder having radial pins mounted to revolve inside 60 of said drum axially eccentric thereto, of covers arranged to close the end openings of said drum, one whereof is provided with a feeding-door, and means, as belts, for simultaneously revolving said drum and mixing-cylinder in 65 opposite directions with different degrees of speed, substantially as shown and described.

3. In a clay-tempering machine, the combination, with a revolubly mounted horizontal drum, and a mixing-cylinder having radial 70 pins mounted to revolve inside of said drum in bearings outside thereof, of a water-supply pipe extending into said drum and provided with a spray-nozzle or rose to moisten the clay in the process of mixing, substantially as 75 shown and described.

4. A clay-tempering machine embodying the following elements: a supporting-frame, a drum having end openings revolubly 80 mounted thereon and provided with discharge-gates, a mixer having radial pins revolubly mounted in and axially eccentric to said drum, covers for the end openings of said drum, one whereof is provided with a feeding-door, a hopper to receive the clay from 85 said discharge-gates, and a water-supply pipe arranged to moisten the clay within the drum, all constructed and arranged substantially as shown, and for the purpose specified.

In testimony that I claim the above I here- 90 unto set my hand.

HORACE B. CAMP.

In presence of—

C. P. HUMPHREY,

C. E. HUMPHREY.