W. L. GREGG.

Devices for Crushing and Pulverizing Clay.

No. 156,565. Patented Nov. 3, 1874.

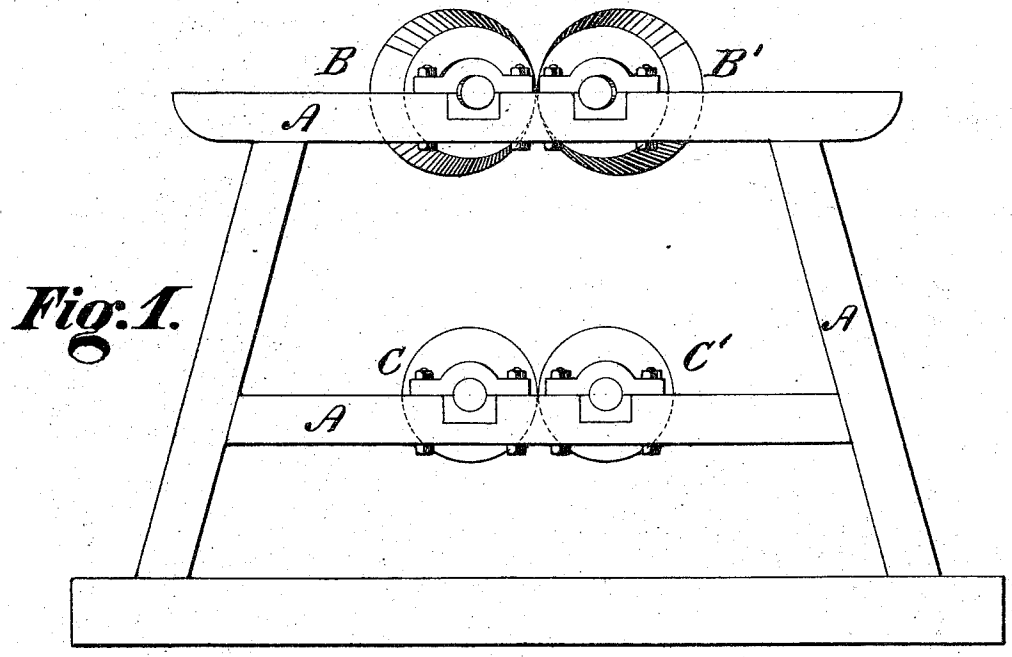

Fig. 1.

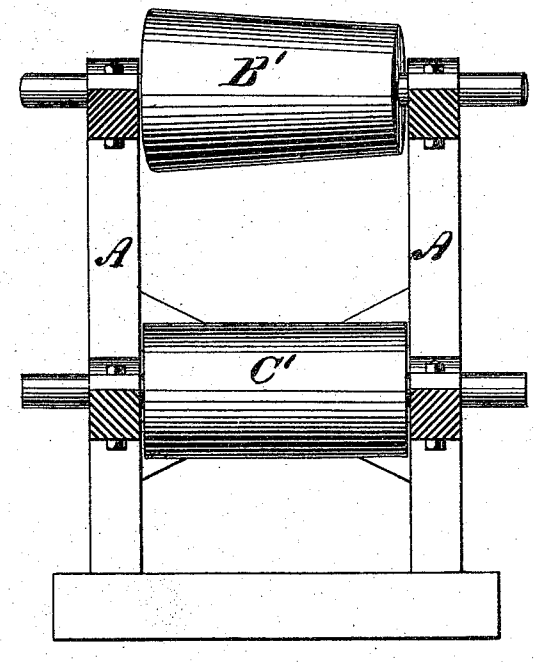

Fig. 2.

Witnesses.

D. L. Collier.

H. L. Harding.

Inventor.

William L. Gregg

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UNITED STATES PATENT OFFICE.

WILLIAM L. GREGG, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN DEVICES FOR CRUSHING AND PULVERIZING CLAY.

Specification forming part of Letters Patent No. **156,565**, dated November 3, 1874; application filed July 8, 1874.

To all whom it may concern:

Be it known that I, WILLIAM L. GREGG, of the city of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in the Manufacture of Bricks, which I term "Gregg's Disintegrating Roller-Mill," of which the following is a specification:

The object of my invention is to provide improved means for crushing and disintegrating the clay supplied to the molds in the manufacture of bricks, and for expelling therefrom stones and other foreign matters detrimental to such manufacture, as well as for thoroughly pulverizing such small pebbles as may happen to pass in with the clay; to which end my improvement consists in the combination of conical rollers, to which the clay is first fed, with cylindrical rollers, which perfect and complete the disintegrating operation commenced by the conical rollers, as hereinafter more fully set forth.

In the manufacture of bricks by machinery—an industry which has now become of very considerable importance, both in this country and in Europe—it has been the custom to crush the clay by means of a single pair of heavy cast-iron rollers. My father, Isaac Gregg, senior, now deceased, devised and patented the application and use of conical rollers for this purpose instead of the cylindrical rollers theretofore employed, to the end that the larger stones might be caused, by centrifugal force, to ascend to the larger ends of the rollers, and there be thrown off; and it has been found in practice that this object is, generally speaking, satisfactorily attained. I have, however, discovered, by practical experience in the manufacture of bricks, that some of the smaller stones will, from time to time, pass between the rollers without being pulverized, and that injury to the structure and beauty of the bricks results therefrom, more especially when such pebbles are composed of limestone. Moreover, when the clay is of a very plastic nature, upon leaving the conical rollers, it tends to shoot out into strips or bands, in the manner of putty, and is difficult, if not impossible, to feed into the molds of machines.

By the use of my improvement the particles of pebbles which are cracked and partially reduced by the conical rollers are thoroughly pulverized and disseminated through the mass, and in this condition improve instead of injuring the structure of the bricks; and, further, the whole mass is more thoroughly disintegrated and pulverized. The clay falls into the mold in flakes, and is in much more desirable condition than when granulated by the expensive process of reeling and screening.

In the accompanying drawing, Figure 1 is a side view, in elevation, of a disintegrating roller-mill embodying my improvements; and Fig. 2, a vertical transverse central section of the same.

A substantial frame, A, serves to support and maintain the mechanism in position. In the upper portion of this frame I mount, in suitable bearings, a pair of rollers, B B′, which are in the form of frustums of cones, their axes being inclined with reference to each other, and set at such distance apart as is proper to crush the clay, which can be fed to them through a hopper, or from an elevator, in any convenient manner. Below these rollers I mount a pair of cylindrical rollers, C C′, in bearings upon the frame.

The two sets of rollers can be set at such distances apart as is deemed most convenient; and the lower rollers C C′ should be placed sufficiently above the bottom to allow of the convenient removal of the crushed clay to the molds.

The rollers may be driven by belts or gearing, according to the preference of the constructer; and the respective rollers of each pair should travel at different rates of speed, so as to exert a rubbing as well as a grinding action upon the clay.

In practice I have found the following respective rates of speed to be desirable, to wit, from one hundred to two hundred revolutions per minute for one roller, and from two to three hundred revolutions for the other.

I am aware that conical rollers have been heretofore known and used, and do not, therefore, broadly claim such device.

I claim as my invention and desire to secure by Letters Patent—

The combination, in a clay-disintegrating

mill, of a pair of conical rollers situated over a pair of cylindrical rollers, the respective rollers of each pair moving at different rates of speed, so that the clay shall be fed first to the conical rollers to remove the larger stones from the clay, which thence falls upon the cylindrical rollers, where the smaller pebbles are ground and the clay pulverized, substantially as described.

WM. L. GREGG.

Witnesses:
J. W. HARBACH,
WM. R. PAGE.