(No Model.)

C. CHAMBERS, Jr.

APPARATUS FOR PREPARING CLAY.

No. 277,459. Patented May 15, 1883.

Fig. 1.

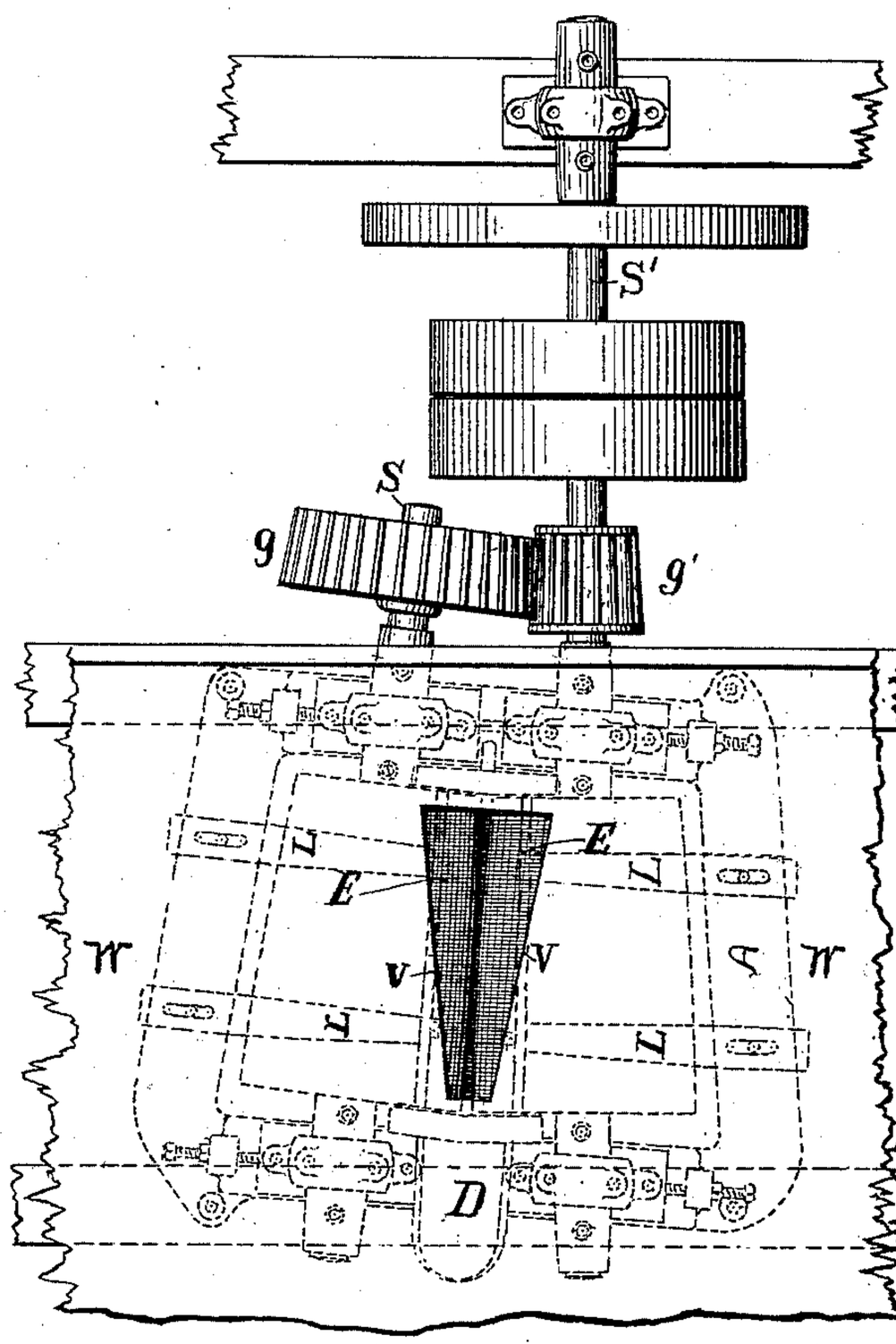


Fig. 2.

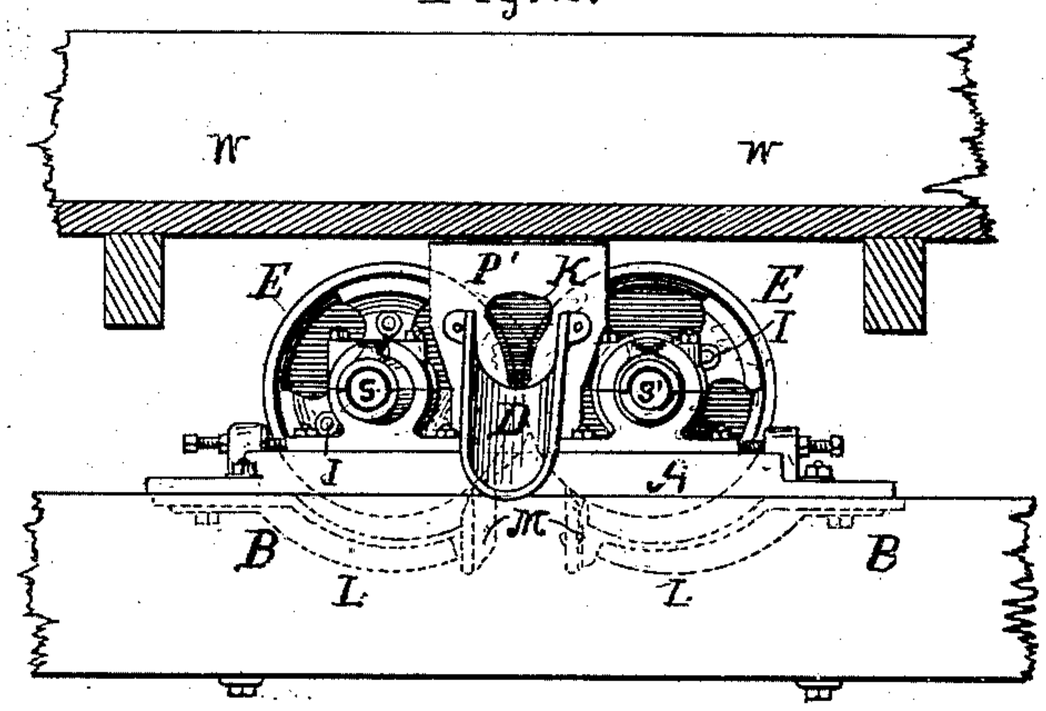


Fig. 3.

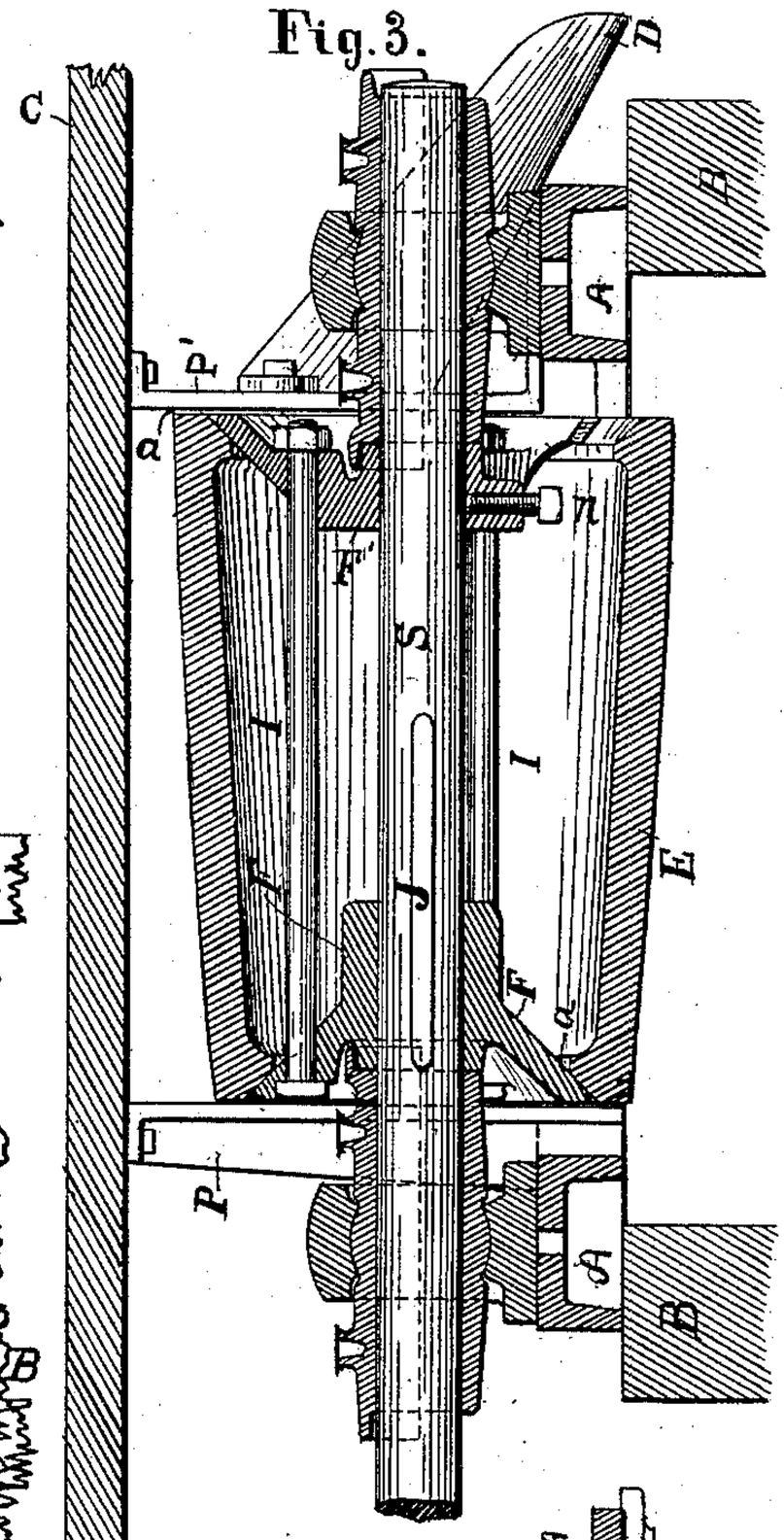
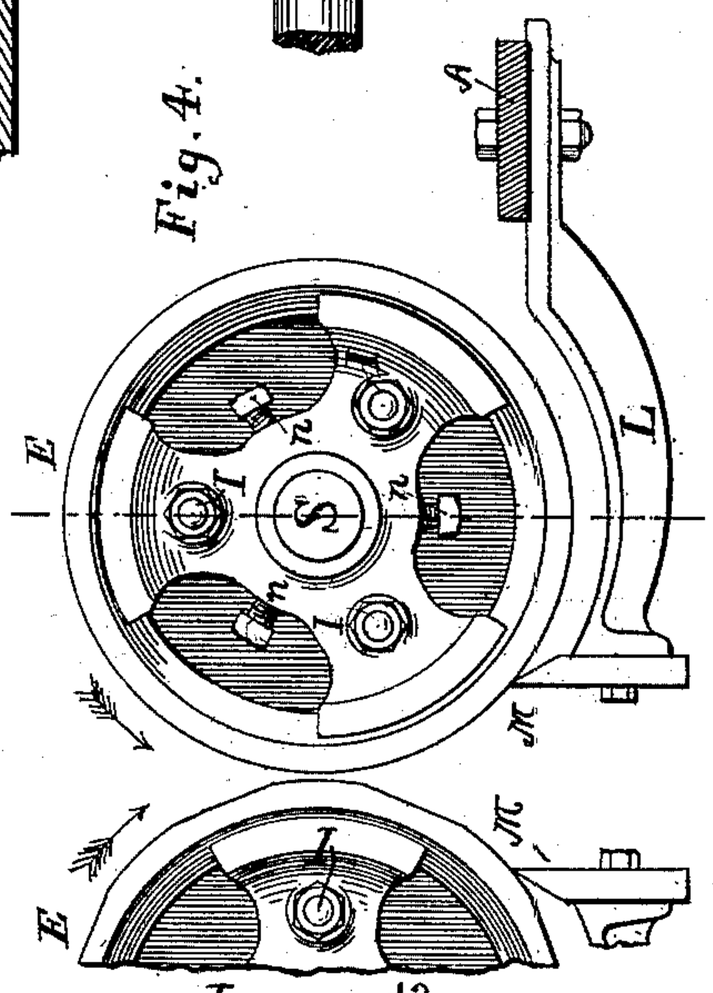


Fig. 4.



Witnesses:
Wm. D. Carson.
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UNITED STATES PATENT OFFICE.

CYRUS CHAMBERS, JR., OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR PREPARING CLAY.

SPECIFICATION forming part of Letters Patent No. 277,459, dated May 15, 1883.

Application filed December 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, CYRUS CHAMBERS, Jr., a citizen of the United States, residing at the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Preparing Clay, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a plan; Fig. 2, an end elevation farthest from the driving-gear; Fig. 3, a vertical longitudinal section, showing details of construction of crushing-rolls; and Fig. 4 is an end elevation of rolls with adjustable scrapers.

This invention relates to apparatus for preparing clay for making brick; and is especially designed for use in connection with the brick-machines which have been patented to me in various Letters Patent, and which machines are well known as the "Chambers brick-machines."

The main part of the apparatus consists of a pair of coacting conical rolls located beneath a platform having an opening therein, between which rolls the clay fed into said opening is crushed, and by which the stones in the clay are worked out at one end of the rolls. I do not, however, claim broadly a pair of rolls, conical or otherwise, for crushing clay. My invention relates merely to the details of construction of the apparatus, as hereinafter described, and specifically pointed out by the claims.

Referring to the accompanying drawings, E E mark two conical rolls, adjusted a suitable distance apart and mounted upon shafts S S′, with gears *g* and *g′*, so proportioned, as shown, that one of the rolls is caused to rotate at a speed greater than that of its fellow.

The frame A, which supports the pillow-blocks in the bearings of which the shafts S S′ revolve, is fastened upon timbers B, secured in the pit, which is usually under the top of the ground. The clay dug from the bank is dumped upon the platform W, and is fed in between the crushing-rolls through the aperture V in the platform, Fig. 1, which aperture is made tapering from the small end toward the large end of the conical rolls. The object of making the feed-opening of this form is to secure the feeding in of a greater quantity of clay at the small end of the rolls, as it has a tendency to travel up toward the larger end thereof, to secure which is (for reasons hereinafter appearing) the object of selecting rolls of conical form.

At one end of the pair of rolls is a plate, P, and at the other end a plate, P′, which keep the clay from falling or working beyond the ends of the rolls. Plate P′, at the larger end of the latter, is provided with an aperture, K, narrowing at the bottom toward the nearest point of approach of the two rolls and enlarging at the top, whereby the larger lumps of clay which shall have worked up against the plate are obstructed until finally caught and crushed by and between the rolls, while the stones which may be in the clay and are worked up by reason of the form of the rolls will pass through said opening K and fall beyond that end of the rolls, or into an inclined spout, D, secured to the plate, as seen in Figs. 2 and 3, whence they fall into a barrow for removal from the pit. The constructing of these crushing-rolls is designed to afford facility for renewing the surface or surfaces which do the work and wear away from the constant attrition of the grit, stones, &c., in the clay. The details of their construction are very clearly shown in Fig. 3, and it will be quite obvious from the following description that this object is readily attained.

An integral shell, E, preferably of hard or chilled iron, with the edges of its ends beveled inwardly, as seen at *a*, Fig. 3, is mediately secured to the shaft S by means of heads F and F′, which are also provided with beveled edges corresponding with the bevels of the shell. These heads are drawn toward each other and securely held by means of through-bolts I. The shell being in proper position, this forces the beveled faces of the heads against the corresponding bevels of the former, whereby the shell is held firmly and concentrically with the shaft S, which passes through the holes in the heads provided for that purpose. The head F is prevented from turning on the shaft by a feather, J, on the latter, and head F′ by means of a set screw or screws, *n*. To remove the shell, it is only required to take off the nuts on the ends of bolts I and slide off one of the

heads F or F′ from the shaft. The shells may be made with either smooth or irregular or polygonal faces, as desired; or one may have a smooth and the other an irregular or a flat-faced surface, as seen in Fig. 4.

On the under side of frame A are fastened brackets L—two at each end of the pair of rolls. To these brackets are bolted scrapers M, whose function is to prevent any of the crushed clay from adhering to the faces of the rolls, and also to cause the clay to be discharged within proper limits—as, for example, so that it will fall upon an elevator-belt, which may be run beneath the rolls to carry the prepared clay into or near the inlet-pipe of the brick-machine, as described in a certain application for Letters Patent for improvements in brick-making machinery filed by me on the 4th day of August, 1882. Lateral or horizontal adjustments of these scrapers are secured by means of slots in the brackets L, and vertical adjustments by slots in the scrapers, through which in each case the fastening-bolts pass.

I have hereinbefore described what I believe to be the best mode of securing the heads F F′ to their shaft; but other means for accomplishing the object may be readily devised by any mechanic of ordinary skill.

Having thus described my invention, what I claim as new is—

1. The combination, with the conical crushing-rolls, of the platform above the same, provided with an aperture diminishing in width from the small end of the rolls toward the larger end thereof, substantially as and for the purpose specified.

2. The combination, with the tapering crushing-rolls, of the end plate P, for the purpose of preventing the clay, when delivered to said rolls, from escaping beyond their ends, substantially as specified.

3. The combination, with the tapering clay-crushing rolls, of the plate P′, located, as shown, at the high ends of the rolls, and provided with an aperture, K, of the form shown and described, the combination and mode of operation being substantially as and for the purpose specified.

4. A roll constructed of an integral shell with beveled ends and with heads with bevels corresponding with those of the shell, and secured to a shaft passing through the heads, all combined, constructed, and operating substantially as and for the purpose described.

5. The combination of the shell E, the beveled heads F F′, through or draw bolts I, and shaft S, substantially as and for the purpose stated.

In testimony whereof I have hereunto affixed my signature this 2d day of December, A. D. 1882.

CYRUS CHAMBERS, JR.

Witnesses:
NATH. E. JANNEY,
S. BERNARD CHAMBERS.