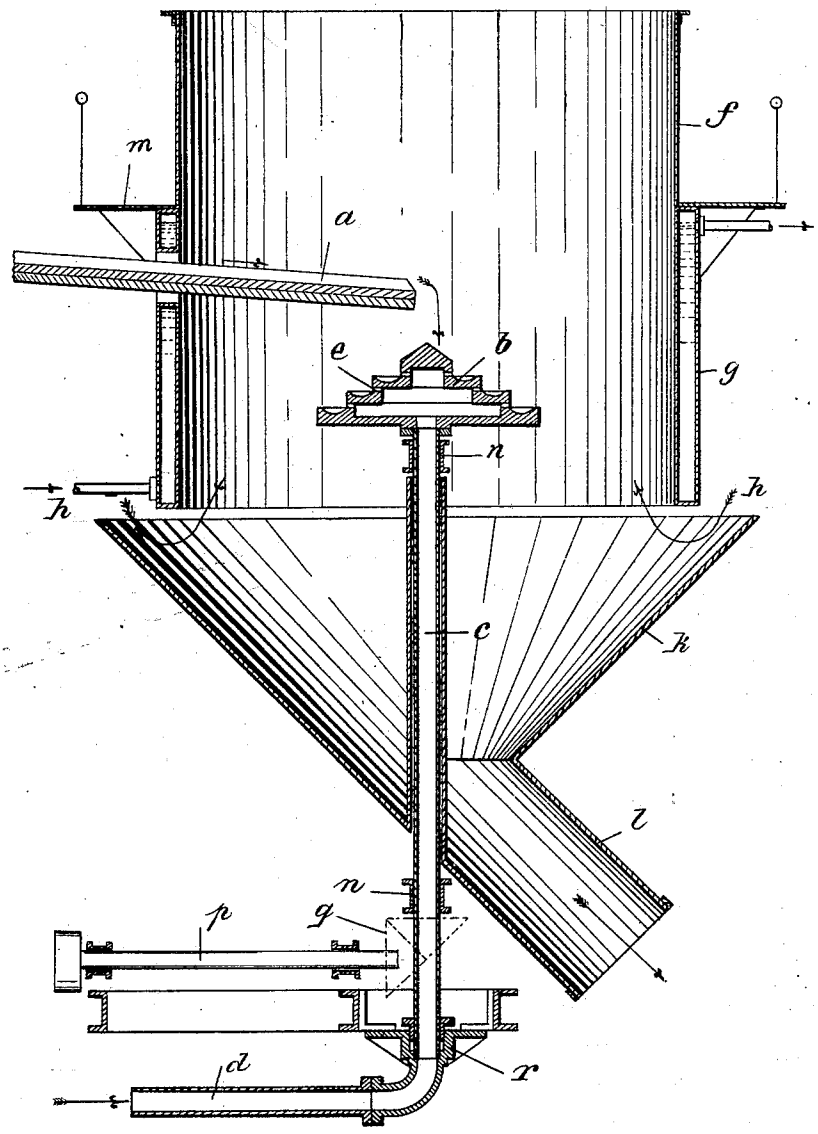
No. 687,524. Patented Nov. 26, 1901.

C. FELLNER.

MANUFACTURE OF CEMENT.

(Application filed Apr. 15, 1901.)

(No Model.)



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHRISTIAN FELLNER, OF FRANKFORT-ON-THE-MAIN, GERMANY.

MANUFACTURE OF CEMENT.

SPECIFICATION forming part of Letters Patent No. 687,524, dated November 26, 1901.

Application filed April 15, 1901. Serial No. 55,903. (No specimens.)

To all whom it may concern:

Be it known that I, CHRISTIAN FELLNER, manufacturer, of Frankfort-on-the-Main, Germany, have invented new and useful Improvements in the Manufacture of Cement, of which the following is a specification.

The present improvements relate to the manufacture of cement, Portland cement, and other cements, and more particularly to that kind of manufacture wherein the constituents of the cement are first in molten condition—as, for instance, in the manufacture of cement out of the slags of blast-furnaces.

The invention consists in the particular means hereinafter described and claimed for treating the molten material and converting it into marketable cement. It is necessary for this purpose to divide the molten material in fine particles as much as possible and bring the same into contact with sufficient air to cause the complete combustion of all deleterious elements, as sulfur, &c., if there are any. For this purpose a rotating cone or plate or equivalent device is provided, to the top of which the molten material is fed. On striking the surface of the quickly-rotating body the material is dispersed by centrifugal force and finely divided.

In order that the present invention may be fully understood, a drawing is annexed, showing the preferred form of the new apparatus.

a is a gutter conducting the molten material from the melting-place and dropping it to the center of the rotating stepped cone *b*. This cone *b*, of iron or other suitable material, is hollow and supported by a hollow axle *c*, which is held in the bearings *n* and rotated by any known means—as, for instance, the shaft *p* and conical gears *q*. The foot end of the axle *c* is introduced into a stuffing-box *r*, which connects it with the air-conduit *d*. The cone *b* has a number of small perforations or twyers *e*, by which the compressed air entering by the conduit *d* is ejected. This air serves to cool the cone, to assist in the fine distribution of the molten material, and to supply oxygen for the combustion of the obnoxious admixtures. The rotating cone is surrounded by a mantle *f*, which is preferably arranged at a considerable distance from the center. The distance of five to six feet has been found practical to allow time for the combustion of the ignited particles while passing up in the space between the rotating cone and the mantle. This mantle *f* is open at its foot, as indicated at *h*, and at its top end to allow the passing of air. The air-current may be strengthened by making the mantle higher than necessary to catch the flying particles. The mantle is preferably cooled at the zone, where the particles thrown outward by the cone *b* impinge. A cooling-jacket *g* is provided for this purpose. The cooling prevents the adhering of the particles to the mantle and improves the product. The dropping material is collected in a cone *k* and discharged by the channel *l*.

A gallery *m* is provided for the man in charge of the apparatus.

Now what I claim, and desire to secure by Letters Patent, is the following:

1. The combination of a hollow perforated rotatable body provided with perforations and increasing in diameter downwardly, a hollow axle communicating with said body and adapted to connect it with a supply of compressed air, and means for conveying material on top of said body.

2. The combination of a rotatable hollow body provided with perforations, a hollow axle communicating with said body and adapted to connect it with a supply of compressed air, and a conduit for dropping molten material on said body.

3. The combination of a rotatable body having a plurality of steps at different levels, the lower steps being of greater diameter than the upper steps, and a conduit for conveying molten material to said body.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTIAN FELLNER.

Witnesses:

JEAN GRUND,

CARL GRUND.

Disclaimer in Letters Patent No. 687,524.

DISCLAIMER.

687,524.—*Christian Fellner*, Frankfort-on-the-Main, Germany. MANUFACTURE OF CEMENT. Patent dated November 26, 1901. Disclaimer filed September 25, 1912, by the assignee, *The Atlas Portland Cement Company.*

Enters this disclaimer to that part of the claim in said specification which is in the following words, to wit:

"1. The combination of a hollow perforated rotatable body provided with perforations and increasing in diameter downwardly, a hollow axle communicating with said body and adapted to connect it with a supply of compressed air, and means for conveying material on top of said body.

"2. The combination of a rotatable hollow body provided with perforations, a hollow axle communicating with said body and adapted to connect it with a supply of compressed air, and a conduit for dropping molten material on said body.

"3. The combination of a rotatable body having a plurality of steps at different levels, the lower steps being of greater diameter than the upper steps, and a conduit for conveying molten material to said body.

[*Official Gazette, October 1, 1912.*]