(No Model.) 2 Sheets—Sheet 1.

T. C. BRECHT.

METHOD OF AND APPARATUS FOR COMPRESSING PLASTIC, PULVERIZED, AND OTHER MATERIALS.

No. 299,514. Patented June 3, 1884.

Fig. 1.

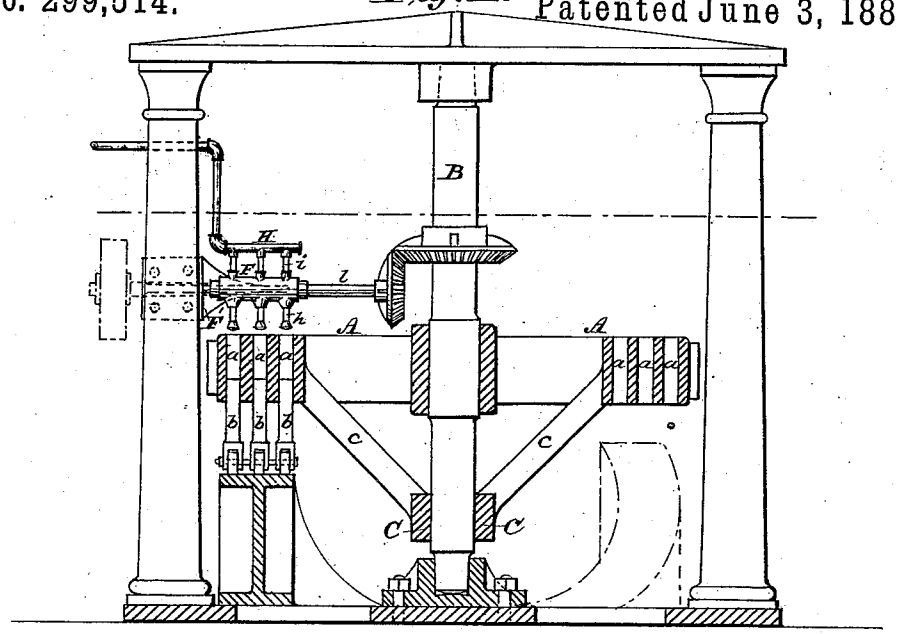
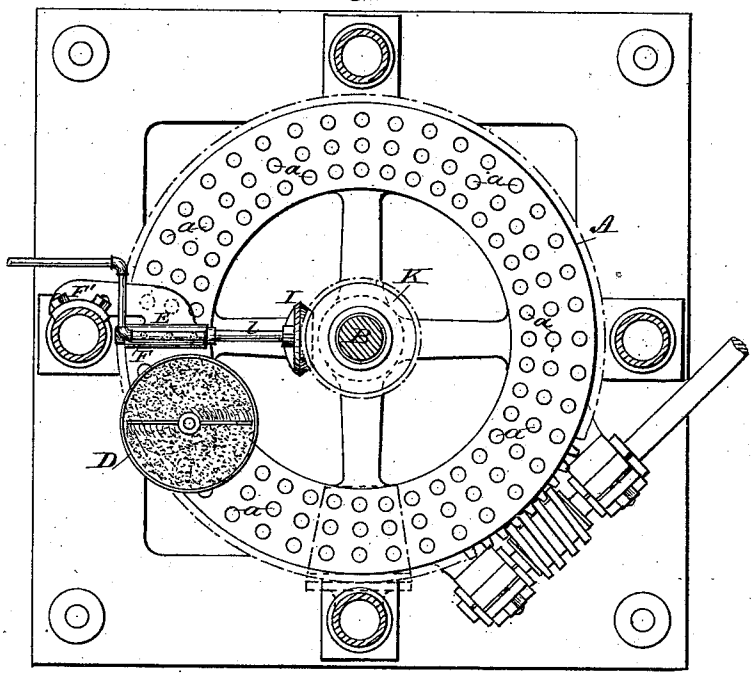


Fig. 2.



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Thaddeus Hyatt

Inventor:
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N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

T. C. BRECHT.

METHOD OF AND APPARATUS FOR COMPRESSING PLASTIC, PULVERIZED, AND OTHER MATERIALS.

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Fig. 4.

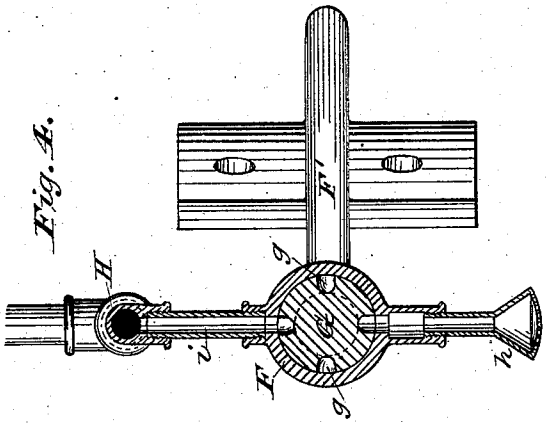
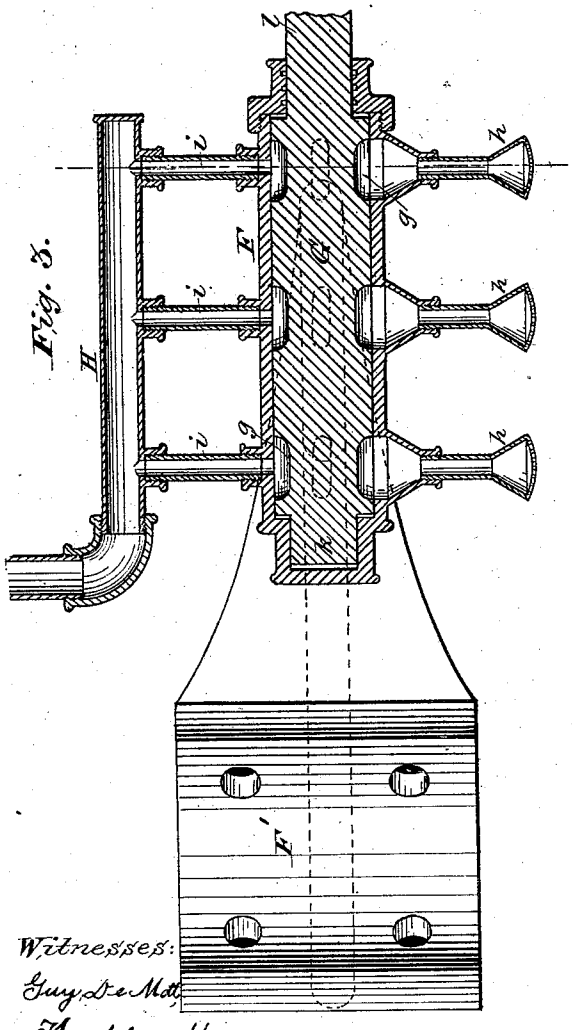
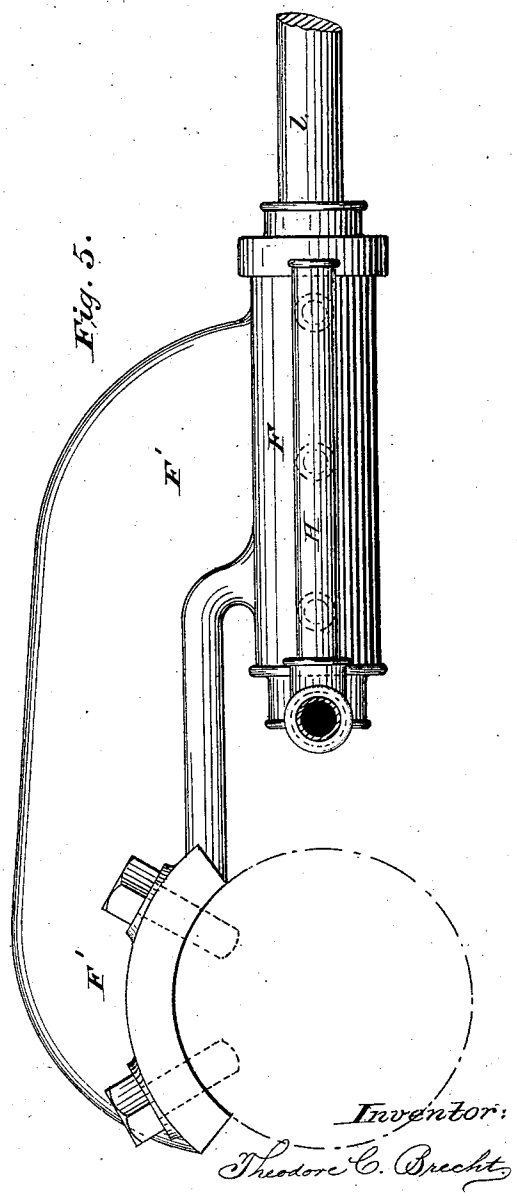


Fig. 5.





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UNITED STATES PATENT OFFICE.

THEODORE C. BRECHT, OF WASHINGTON, DISTRICT OF COLUMBIA.

METHOD OF AND APPARATUS FOR COMPRESSING PLASTIC, PULVERIZED, AND OTHER MATERIALS.

SPECIFICATION forming part of Letters Patent No. 299,514, dated June 3, 1884.

Application filed November 6, 1883. (No model.)

To all whom it may concern:

Be it known that I, THEODORE C. BRECHT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Methods of and Apparatus for Compressing Plastic, Pulverized, and other Materials; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in methods of and apparatus for compressing pulverized, granulated, plastic, or other material into any desired form or shape; and the object of my invention is to compress such material into cakes, cubes, blocks, cylinders, or other shaped articles, so that they will be hard and firm and not easily crumble in handling; also, to lubricate the molds in which they are compressed and facilitate their removal, and prevent breakage when they are forced out of the molds by the plungers; and, furthermore, to form a smooth film or crust of the same material on said cubes, cakes, &c., on their outer surface, so as to prevent waste of material.

The invention consists in an improvement on the Patent No. 279,384, granted to Chas. Hemje and Theodore C. Brecht; and it consists in subjecting the mold-cavities of a compressing-machine, as also the faces of the plungers, to a jet or jets of finely comminuted or sprayed water automatically introduced by suitable means just before the molds enter the feed-hopper containing the material to be pressed.

It also consists in the construction and arrangement of certain parts of the apparatus, as will be more fully described hereinafter, and more specifically pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 represents a vertical central section of a machine having my invention attached. Fig. 2 is a horizontal section of the machine on the line *x x*. Fig. 3 is a longitudinal section of my improved spraying device. Fig. 4 is a cross-section of the same on line *y y*. Fig. 5 is a top view of the same.

In the accompanying drawings, A represents a horizontal mold-wheel of a compressing-machine, properly supported in a frame, and having a large number of molds, *a*, in which the material, whatever it may be, is compressed by plungers *b*, operated by suitable inclines. According to the material to be compressed, more or less molds, and of larger or smaller size, may be employed. The mold-wheel is secured to a vertical shaft, B, and to prevent tilting or canting, and always maintain it in a true horizontal plane, I provide an additional or auxiliary hub, C, cast with arms or braces *c*, unto the mold-wheel. This hub, with its arms, may, however, be cast separate and firmly bolted by the arms to the mold-wheel, and, if desired, a similar hub and arms may be placed on the upper side, so as to prevent any possible deviation on the outer circumference, often caused by the great pressure required to properly compress the material. The usual hopper, D, with brushes or scrapers, is employed, into which the material to be compressed is introduced; and in close proximity to said hopper, and a slight distance above the face of the mold-wheel, I arrange my improved spraying apparatus E. This apparatus consists of a shell or casing, F, which is secured by a suitable bracket, F′, to one of the columns or any other part of the machine, the bracket being shaped accordingly.

Within the casing F is placed a plug, G, which may be made slightly tapering, and acts similarly to a rotary or oscillating valve. It is provided with one or more cavities, *g*, in its periphery, and they may be varied in size to supply a larger or smaller quantity, as desired. In the drawings three rows are shown side by side to correspond with the rows of molds in the mold-wheel, with which they coincide. In each row are represented four of these cavities; but more or less may be used. At the upper side of the casing or cylinder F are placed connecting branches *i* of the water-pipe H, communicating with any source of supply. The water I prefer to use is previously heated.

On the lower side of the cylinder are arranged the spraying-nozzles *h*, which may be made adjustable, and may be of rose form, flat, or other shape. They are shown in line with the branch pipes *i*; but I do not limit myself to the precise arrangement shown, as this

can be greatly varied. If the molds are not arranged radially, but staggered, the nozzles must be made to coincide therewith.

The plug G has a bearing, *k*, at one end, and at the other end it passes through a suitable stuffing-box, and forms a shaft, *l*, upon the outer end of which I have shown a bevel-wheel, I, meshing with another, K, secured to the shaft B, to impart motion to the plug G. If desired, this arrangement may be reversed—*i. e.*, the shaft *l* may be extended on the opposite end of the cylinder and be provided with a pulley (shown in dotted lines in Fig. 1) to be driven from any other source.

Instead of a rotary plug, a reciprocating plug or its equivalent may be employed, and the manner of operating it would readily suggest itself to the skilled mechanic.

The water may be introduced under pressure, and any equivalent thereof may be employed.

The rotary plug may be arranged to act as a cut-off valve, having passages accordingly, which extend through the plug or around it partly, so as to communicate with the source of supply and the spraying-nozzles. In this case the valve-operating mechanism must be arranged to give the proper motion to said plug.

Many other modifications will readily suggest themselves to the skilled mechanic to carry out my process, and I therefore do not confine myself to the construction of devices herein shown.

The operation is as follows: The connections having been made with the hot-water pipe H, motion being imparted to the machine and material introduced into the hopper, the cavities in the plug will take up the proper quantity of hot water and carry it around until it comes opposite the branches with the spraying-nozzles *h*, through which it will pass in finely sprayed or comminuted state into the mold-cavities and against the plungers just before they enter into the feed-hopper containing the material to be compressed. The mold-cavities and plungers will be lubricated, the material will absorb the moisture, and by the pressure exerted on the material and the friction created a perfectly-smooth surface will be imparted to the cakes, cubes, &c., forming a hard film or crust of the same material, by which crumbling or breaking is prevented.

The material may be slightly dampened or moistened by steam, comminuted water, or other means, beforehand, if desired, although usually not necessary.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The method herein described of forming cubes, cakes, &c., composed of pulverized, granulated, or plastic material, which consists in subjecting the molds and the ends of the plungers to a jet or jets of sprayed or comminuted water prior to the filling of the molds with the material, and then compressing it in said molds, as set forth.

2. The process herein described of compressing material into any desired size or shape, consisting in subjecting the molds and the ends of the plungers to one or more jets of sprayed or comminuted water or its equivalent, automatically, just prior to the filling of the molds with the material, and then compressing it within the molds, as specified.

3. In a compressing-machine, a plug, E, provided with one or more cavities arranged in a cylinder provided with openings and spraying-nozzles for injecting jets or sprays into the molds of said machine, as and for the purpose set forth.

4. In a compressing-machine, a rotary plug, E, provided with one or more cavities in its periphery, arranged in a shell, F, having spraying-nozzles, and connected to a source of supply, so as to automatically and intermittently inject into the molds and against the ends of the plungers of said machine one or more jets of water, &c., as and for the purpose specified.

5. In a compressing-machine, a mold-wheel provided with an auxiliary or extended hub having arms or braces cast or secured to said mold-wheel, substantially as shown, and for the purpose set forth.

6. The process herein described of compressing pulverized, granulated, plastic, or other materials into suitable shape and size, which consists in subjecting the molds and ends of the plungers to a jet or jets of sprayed or comminuted water or other fluid, and then compressing it, as and for the purpose specified.

In testimony whereof I hereby affix my signature in presence of two witnesses

THEODORE C. BRECHT.

Witnesses:
J. M. YZNAGA,
GUY DE MOTT.