

(Model.)

C. HEMJE.

METHOD OF COMPRESSING PULVERIZED MATERIAL.

No. 287,128.

Patented Oct. 23, 1883.

Fig 1.

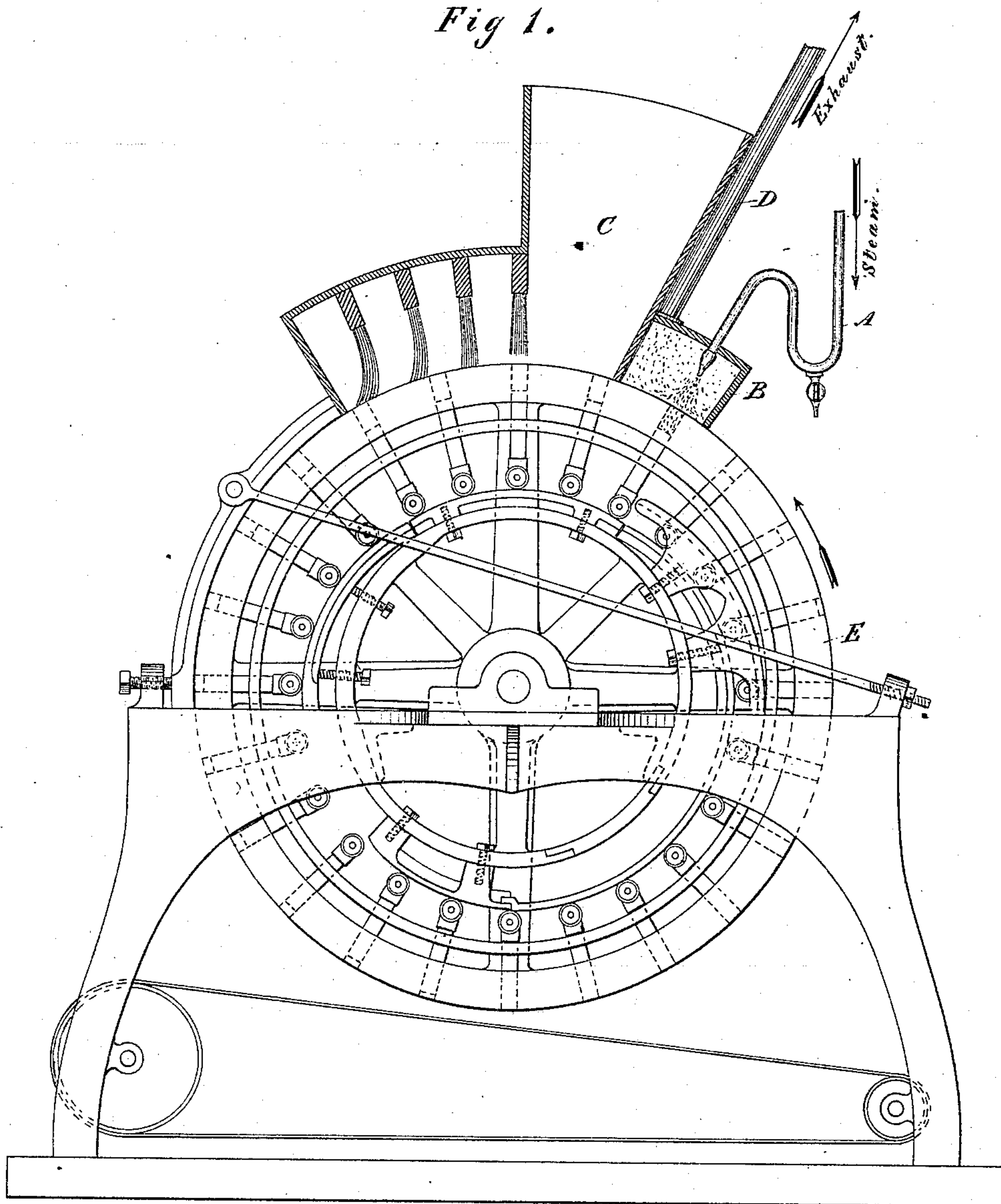
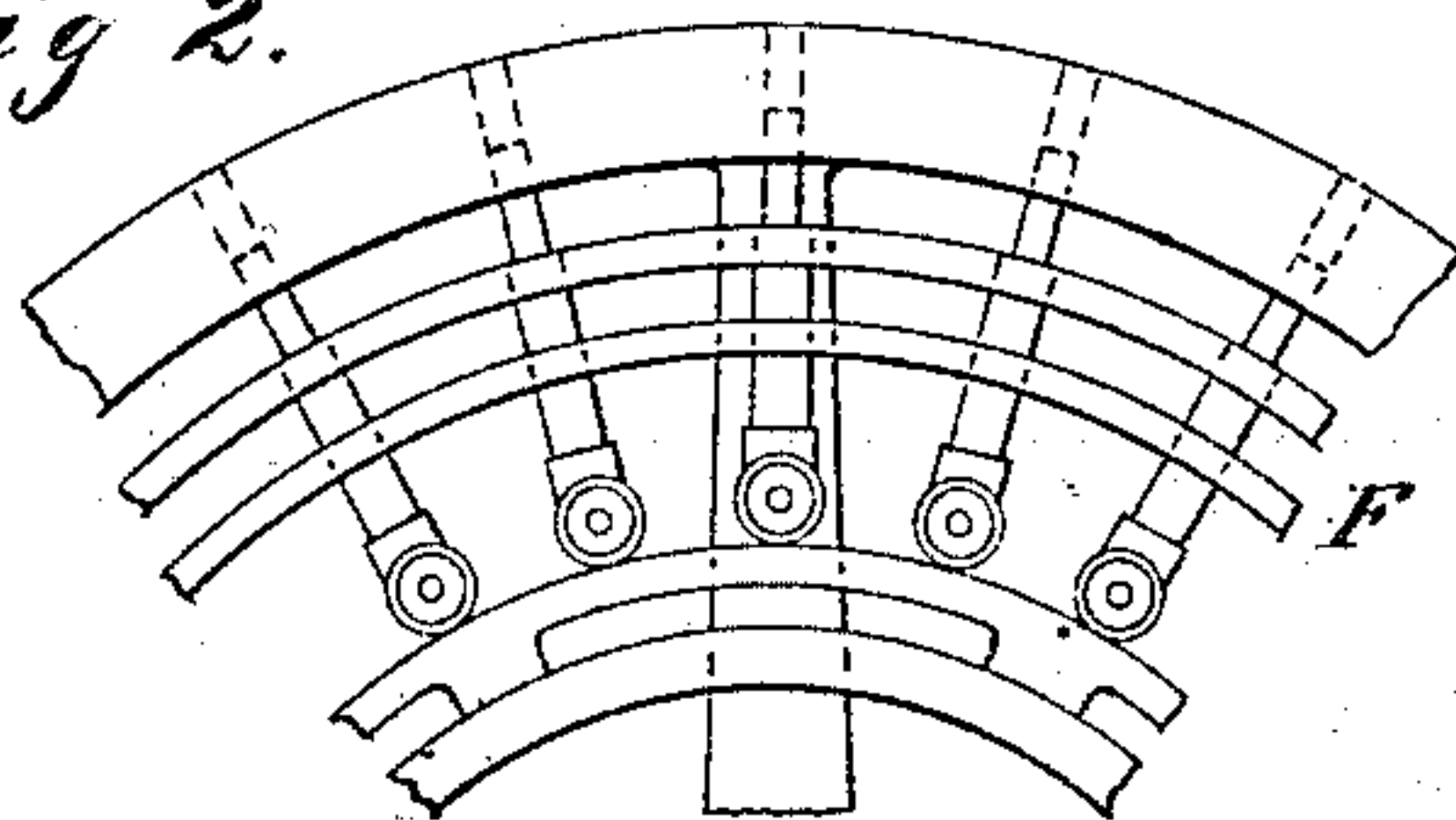


Fig 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES HEMJE, OF WASHINGTON, DISTRICT OF COLUMBIA.

METHOD OF COMPRESSING PULVERIZED MATERIAL.

SPECIFICATION forming part of Letters Patent No. 287,128, dated October 23, 1883.

Application filed September 26, 1883. (Model.)

To all whom it may concern:

Be it known that I, CHARLES HEMJE, 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 Pulverized Material, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in the method and apparatus for compressing pulverized, granulated, or other like material into form; and the object of my invention is to compress such material into cakes, cubes, cylinders, or other shaped articles, so that they will be hard and solid, and can be handled without breaking as soon as they leave the machine in which they are formed.

To this end my invention consists in subjecting the mold-cavities and the pressing-faces of the plungers to a jet of steam, said steaming device being located so as to inject the steam into the molds and onto the plunger just before the molds enter the feed-hopper, which contains the material to be pressed.

The machine which I prefer to use in compressing or forming the articles is shown, described, and claimed in a patent granted to T. C. Brecht and myself, June 12, 1883, No. 279,384, and to which reference is made for a detailed description of construction and operation. My improvement is applicable, however, to all machines in which pulverized and granulated material is to be compressed into shape, and only so much of the mechanism of the patent referred to is shown as will give a full, clear, and exact description of this invention.

Figure 1 is a side elevation, partly in section, of the machine. Fig. 2 is a side elevation of a portion of the mold-wheel and plungers, showing an additional guide-bar for the plungers.

A is a steam-pipe leading from the boiler of the engine which drives the machine, or from any other suitable or convenient source of supply. The steam-pipe A enters a steam-chamber, B, located immediately in front of the feed-hopper C, said chamber being supplied with an exhaust or escape pipe, D.

E is the mold-wheel, in the periphery of

which is located the mold-cavities, and as said wheel is rotated, in the direction of the arrow, through the steam-chamber B, the mold-cavities, together with the head of the plunger which is located therein, are subjected to a jet or spray of steam from the pipe A, and then pass immediately into or under the feed-hopper, where the molds receive their charge of the material to be compressed. The steam which is injected into the mold-cavities immediately condenses on the sides of the mold and on the pressing-face of the plungers. The dry and pulverized material to be compressed absorbs this moisture or condensed steam from the sides of the mold and face of the plunger as soon as it comes in contact therewith, and by the act of compression and the friction exerted during the process of ejecting the article from the mold a hard glazed shell is formed on the outside of the cakes, cubes, or cylinders, which prevents the article from crumbling or the corners from being broken off, and enables the articles to be handled as soon as they emerge from the machine. The material of which the cakes, cubes, cylinders, &c., are composed can be compressed while in a perfectly dry state; or it may be slightly dampened or moistened by steam or other means before being compressed.

In machines which have numerous mold-cavities in close juxtaposition, as where small articles are to be formed, or in machines that are continuously rotated, the steam-jet is arranged to discharge continuously into the chamber B and mold-cavities; but in brick or other machines, where comparatively large articles are formed from dry material and the mold-wheel has an intermittent or step-by-step motion imparted to it, the devices can be arranged so as to inject a jet of steam into the mold at stated intervals when the mold is directly under it, and be shut off as the mold passes from under the jet.

This process of steaming the molds can also be adapted to machines having one or more stationary mold-cavities, the steam being admitted when the plungers and newly-formed article have been withdrawn from the mold and before a fresh charge of material has been placed in the mold.

As before stated, the effect of the steaming

process of the mold-cavities and plunger on the article produced is to cause a hard glazed surface or shell to be formed, which renders the article less liable to breakage, and in addition
5 to this the steam serves to lubricate the mold and prevents the material from working in around the plungers, thus enabling the plungers to be retracted with but very little effort; and, furthermore, the subsequent process of
10 steaming the article to form a film, as described in Patent No. 261,228, granted to T. C. Brecht and myself July 18, 1882, is dispensed with, while the product is clearly distinguishable from the article produced by the patent last
15 above referred to, in that it has a smooth glazed exterior shell surrounding it.

Among the many articles which can be manufactured to advantage by this process of steaming the mold, I enumerate cube-sugar, bi-
20 carbonate of soda, tartaric acid, pulverized flavoring extracts, or combinations of these, lozenges, troches, pills, buttons, billiard-balls, door-knobs, bricks, &c. The special use in which I shall employ it, however, is in the
25 formation of cubes or small cylinders of bicarbonate of soda for brewers' use, as stated in the patents heretofore referred to.

In Fig. 2 I have shown the mold-wheel as

supplied with an additional flange or guide-bar, F, for steadying and guiding the plungers
30 in their passage into and out of the mold-cavities.

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

1. The method herein described of forming
35 articles from pulverized or granulated material, which consists in subjecting the molds and the ends of the compression-plungers to a jet or jets of steam just prior to the filling of the
40 molds with the powdered material, and then compressing the material within the molds, as set forth.

2. As a new article of manufacture, cubes, cylinders, cakes, &c., of bicarbonate of soda or
45 other like material having a glazed exterior surface or shell, which forms the walls of the article, said wall or shell being composed of the same material of which the body of the article is made, as and for the purpose set forth. 50

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

CHARLES HEMJE.

Witnesses:

ALBR. BECHER,
C. R. HANSCOM.