

No. 622,801.

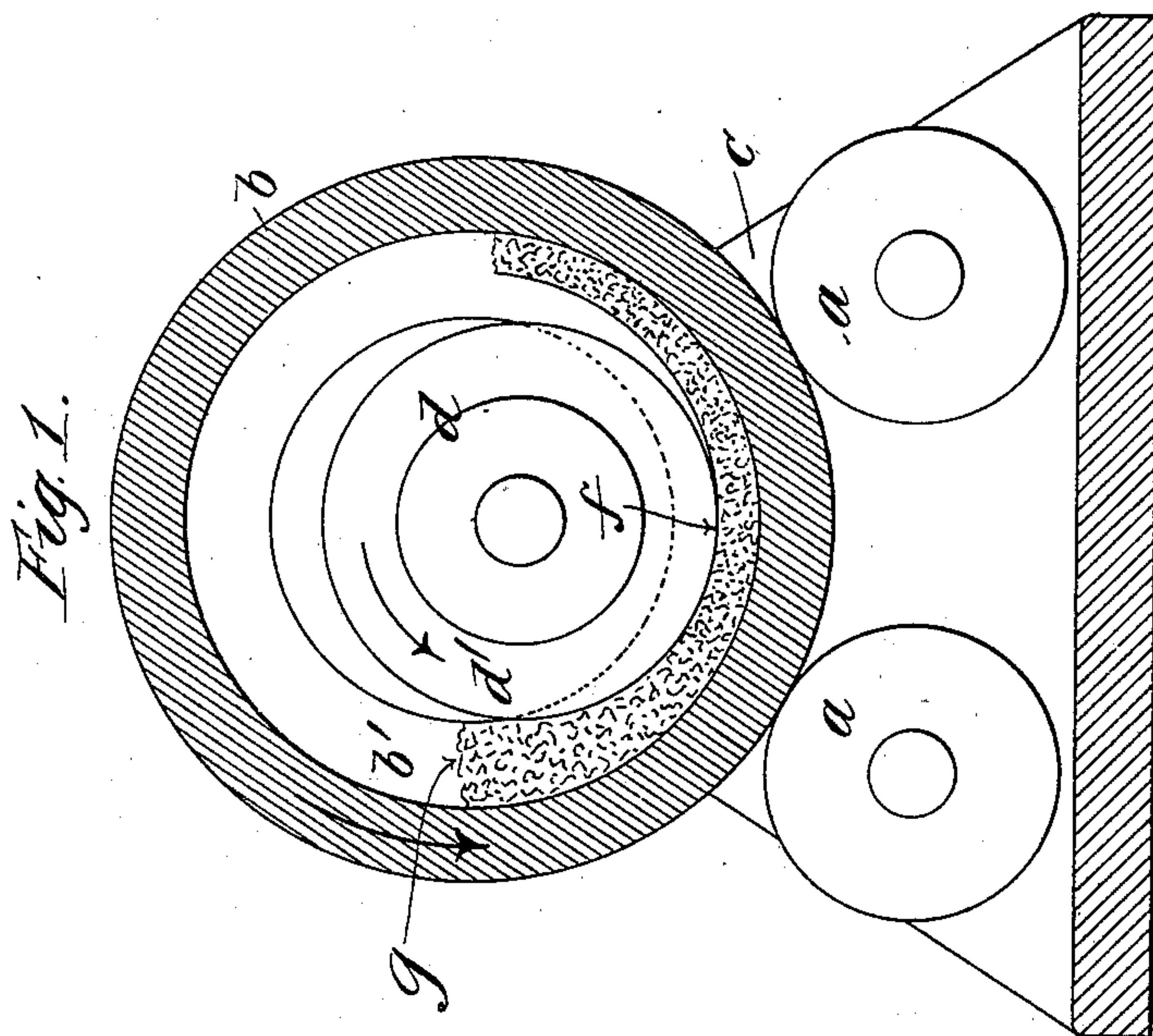
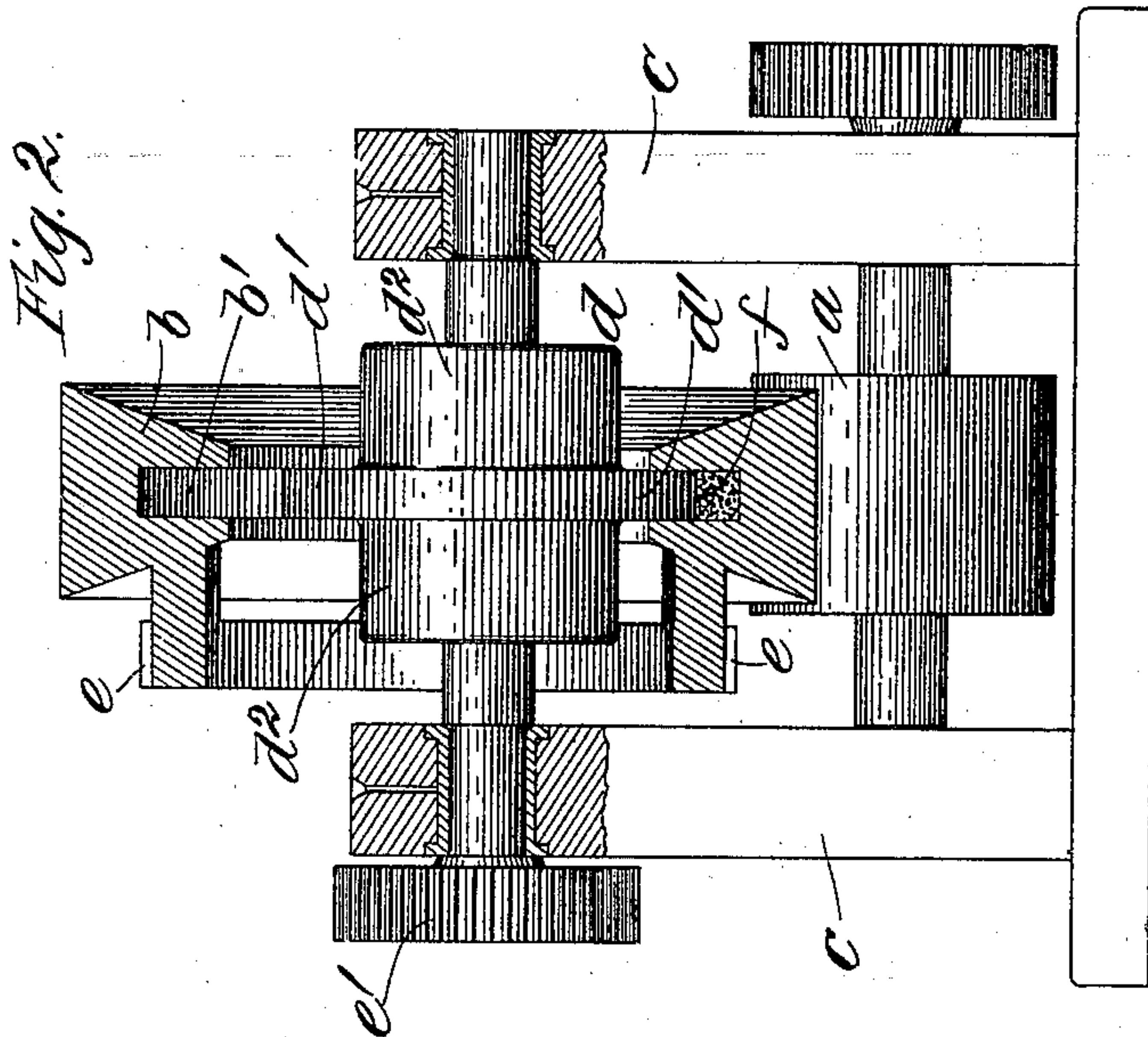
Patented Apr. 11, 1899.

E. W. G. C. HOFFMANN.

ROLLING MILL.

(Application filed Dec. 12, 1898.)

(No Model.)



Witnesses:

A. P. Amner.

A. W. Lawrence.

Inventor
Ernst W. G. Hoffmann
By Barton & Brown
Attorneys.

UNITED STATES PATENT OFFICE.

ERNST WILHELM GUSTAV CARL HOFFMANN, OF CHARLOTTENBURG, GERMANY, ASSIGNOR TO THE SIEMENS & HALSKE ELECTRIC COMPANY OF AMERICA, OF CHICAGO, ILLINOIS.

ROLLING-MILL.

SPECIFICATION forming part of Letters Patent No. 622,801, dated April 11, 1899.

Application filed December 12, 1898. Serial No. 698,989. (No model.)

To all whom it may concern:

Be it known that I, ERNST WILHELM GUSTAV CARL HOFFMANN, a subject of the Emperor of Germany, residing at Charlottenburg, Germany, have invented a certain new and useful Improvement in Rolling-Mills, of which the following is a full, clear, concise, and exact description.

My invention relates to improvements in rolling-mills adapted for the compression of granular or pulverized materials, and has for its object the provision of simple and highly-effective means for accomplishing said result.

It has previously been found necessary in effecting the compression and cohesion of granular or pulverized substances—such as carbon, for example—to employ rollers of extremely large diameter in order to secure large contact-surfaces and prevent the material from being forced backward by the rollers, whereby insufficient compression and an inferior completed product result. In order to overcome this, the mills or rolling-machines for rolling many classes of comminuted material commonly are constructed of considerable size and unnecessary weight in order to overcome the disadvantage above alluded to. It will readily be appreciated that in a large machine the tendency of the rollers during the operation to force the treated material backward is largely done away with, since the curvature of their surfaces is comparatively slight and a relatively large area for the engagement of the rolled product is provided. In accordance with my present invention I have been enabled to secure the same advantageous results with smaller and less expensive machines than have previously been employed.

I may briefly describe the rolling or compression mill of my invention as consisting of a hollow drum wherein the pressure roller or rollers are eccentrically disposed, the treated material being compressed between the inner face of the drum and the peripheries of the said roller or rollers.

My invention will be more readily understood by reference to the accompanying drawings, wherein—

Figure 1 is a side view of my improved machine, shown partially in section, illustrating the compression of a quantity of granular material. Fig. 2 is a vertical sectional view of said machine.

The same letter of reference is used to designate like parts in both figures of the drawings.

Upon the supporting-rollers *a a* the drum *b* is rotatably mounted, the said rollers being carried in the frame *c* to withstand a rolling pressure applied from above. In the machine shown the drum is provided with an interior annular channel *b'*, within which the disk *d'* of the compression-roller *d* closely fits. The compression-roller is eccentrically mounted in the machine with respect to the coacting rotatable drum. Gear-wheels *e* and *e'* are provided, respectively, for driving the drum and the compression-roller shaft, the same preferably being constructed to secure the rotation of the drum and disk in the direction of the arrows, (see Fig. 1,) so that the movements of the treated product and of the compression-disk *d'* at their engaging surfaces *f* will be equal. Granular carbon, for example, being fed into the mill at *g*, it will be seen that the same is gradually compressed between the interior surface of the drum and the circumference of the pressure-disk *d'* substantially throughout the quadrant of a circle. The tendency of the material under the pressure-roller to be forced backward is overcome by the construction shown, and the carbon is compressed with any desired force within the annular channel *b'*, from which it may be removed from the machine upon the farther side of the roller by any suitable means.

To assist in effecting the compression of the treated substance, I preferably provide a heavy cylindrical part *d²* upon the shaft of the compression-roller *d*, the weight thereof coacting with the pressure secured through the bearings of the shaft.

It is obvious that alterations may be made in the machine herein specifically described and shown, and I do not desire to be understood as limiting myself to the precise details thereof; but,

Having now explained my invention, what I claim as new, and desire to secure by these Letters Patent, is—

1. In a machine of the class described, the combination with a channeled drum, of a compression-roller eccentrically mounted within said drum and having its effective periphery lying within the channel, and means for supporting and for rotating the said roller and drum, substantially as described.

2. In a rolling-mill of the class described, the combination with a rotatable drum *b* provided with a channel *b'* wherein the material is acted upon, of a compression-roller *d* eccentrically mounted in the drum in position to engage the material within the channel, rollers *a a* adapted to support the drum, and means for rotating the roller and drum in the same direction and substantially at the same speed, substantially as described.

3. In a rolling-mill for effecting the com-

pression of comminuted substances, the combination with a drum *b*, of a coacting compression-roller *d* eccentrically disposed within said drum, supporting-rollers *a a*, and means for effecting the rotation of the drum and roller, substantially as described.

4. In a rolling-mill of the class described, the combination with a drum *b* rotatably mounted upon the supporting-rollers *a a*, of a coacting compression-roller *d* eccentrically mounted therein, and mechanism for rotating the said drum and roller, whereby the rotatory movements of the roller and of the treated material at point *f* are equal, substantially as described.

In witness whereof I hereunto subscribe my name this 14th day of November, A. D. 1898.

ERNST WILHELM GUSTAV CARL HOFFMANN.

Witnesses:

PAUL ROEDIGER,

E. L. GOLDSCHMIDT.