

A. Dietz,

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No. 108,769.

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Fig. 1.

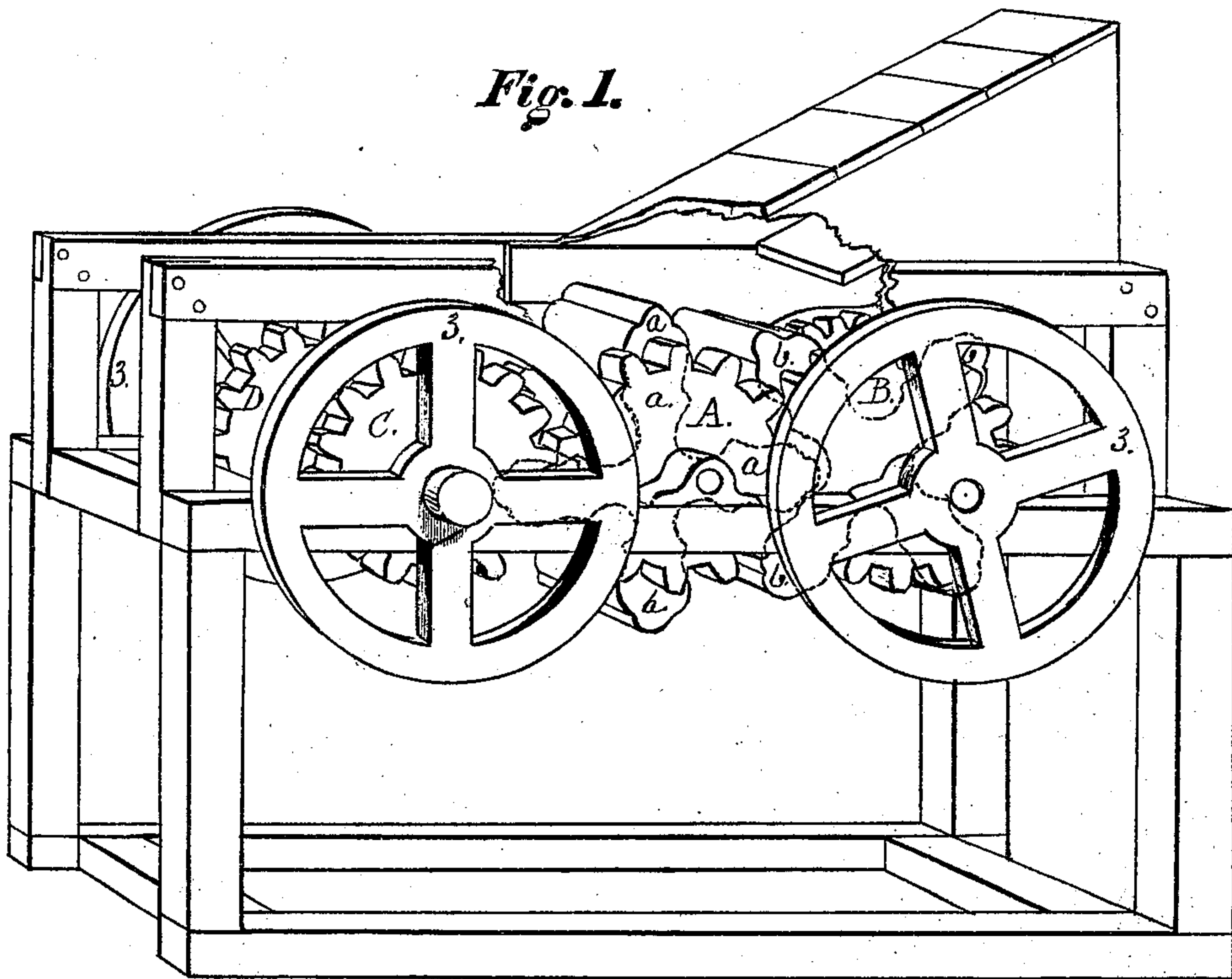
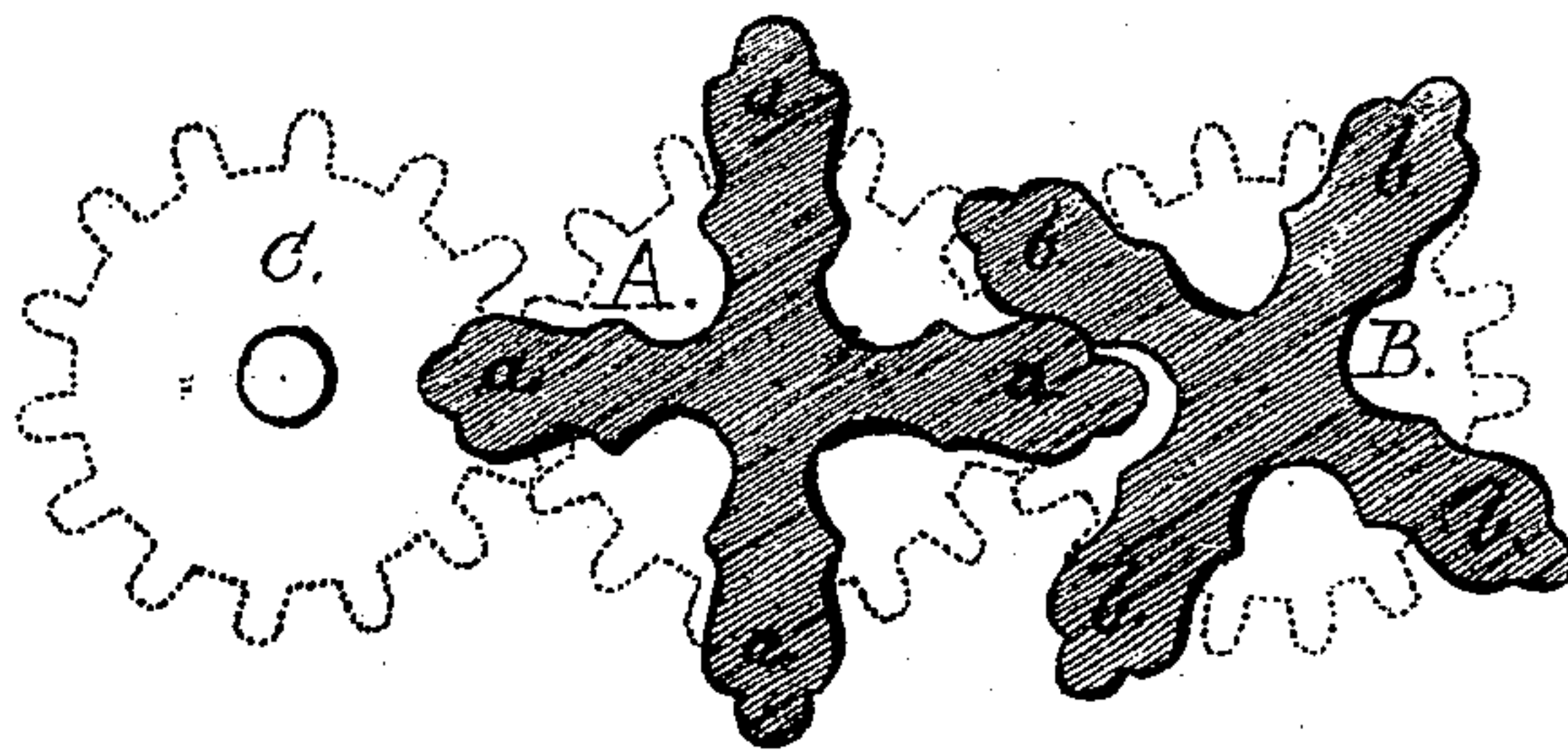


Fig. 2.



Witnesses
J. D. Law
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ANDREW DIETZ, OF NEW YORK, N. Y.

Letters Patent No. 108,769, dated November 1, 1870.

IMPROVEMENT IN MACHINES FOR BREAKING STONES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, ANDREW DIETZ, of the city of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Machines for Breaking Stones; and I do hereby declare that the following is a full, clear, and exact description thereof, and of its mode or manner of operation, reference being had to the accompanying drawing and to the letters of reference marked thereon and making a part of this specification.

This invention consists of two revolving cylinders, on the peripheries of which are strong projecting arms or breakers, which gear into each other as the cylinders are revolved, and the surfaces of which are corrugated or in different planes, so as to present numerous faces or edges, by the action of which the stones are broken and rebroken, until reduced to the size desired.

Figure 1 is a general perspective view of a stone-breaking machine, constructed according to my invention, a portion of the hopper and frame being broken away.

Figure 2 is a vertical section lengthwise of the same machine.

The operative cylinders A and B are made of any material sufficiently strong, but preferably of iron, and have upon their peripheries strong projections or arms *a b*, which gear loosely together as such cylinders are revolved, and between and by which the stones are broken.

These projecting arms, instead of being regular or uniform in shape like ordinary gear or cracking-teeth, have irregular surfaces, as illustrated in the figures, corrugated or fluted, or with differently projecting faces, which are generally curved, and either with uniform or varying diameters.

Each surface of every tooth thus presents several projecting faces or edges, to act against the stones to be broken.

Such projecting faces or edges may also be varied in their arrangement upon the several arms *a* and *b* upon the same cylinder, and may be more or less prominent, as desired, or according to the particular service to be performed; but arms *a* and *b* should have a sufficiently broad base to secure all required strength, say from nine to twelve inches wide, and may be of about the same height.

Such cylinders are so arranged with respect to each other that their projecting arms do not mesh or gear closely, but only loosely together, or with some space between the surfaces of the arms, such

space corresponding to the size to which it is desired the stones should be broken.

One of such rollers should also be made adjustable, so that the distance between the breaking or cracking-arms *a b* may be varied, and thus the machine be made capable of breaking stones of different sizes, and to pieces of different bigness.

By giving to the opposing surfaces of the crushing-arms an irregular surface, some portions projecting more than others, the stones, as they drop between such arms, *a* and *b*, are caught between the projecting edges or faces thereof and are cracked or broken as such faces approach each other, and are then again caught between other projecting points, and thus repeatedly cracked and broken until reduced to the desired size.

To secure proper and effectual action to those crushing-cylinders, they connect together on either side by strong gear-wheels, which receive motion through one or more smaller wheels, C and D, connecting with a piston or operated by any sufficient power.

To overcome the varying resistance offered, and relieve the crushing-cylinders from the strain consequent upon the labor performed by them, to one or both such cylinders fly-wheels 3 3 may be connected, as they also may be to the wheels C and D.

By the revolution of the cylinders and their projecting arms, the edges or faces of such arms act upon the stones with a force like that of a sharp, sudden blow, while at the same time the face, against which the blow is given, is also in motion, and the arms of the crushing cylinders are much less liable to become broken.

What is claimed is—

1. In a stone-breaking machine, the cylinders A and B, constructed and arranged substantially as described, having projecting or radial arms for crushing the stones, with surfaces formed with unequally projecting points or portions, for the purposes set forth, in combination with mechanism for imparting a rotary motion to such cylinders.

2. The combination, in a stone-breaking machine, of the cylinders A and B, constructed and arranged as described, with mechanism for revolving them, and with one or more fly-wheels, the whole being and operating substantially as set forth.

ANDREW DIETZ.

Witnesses:

S. D. LARE,
FRED. B. SEARS.