

(No Model.)

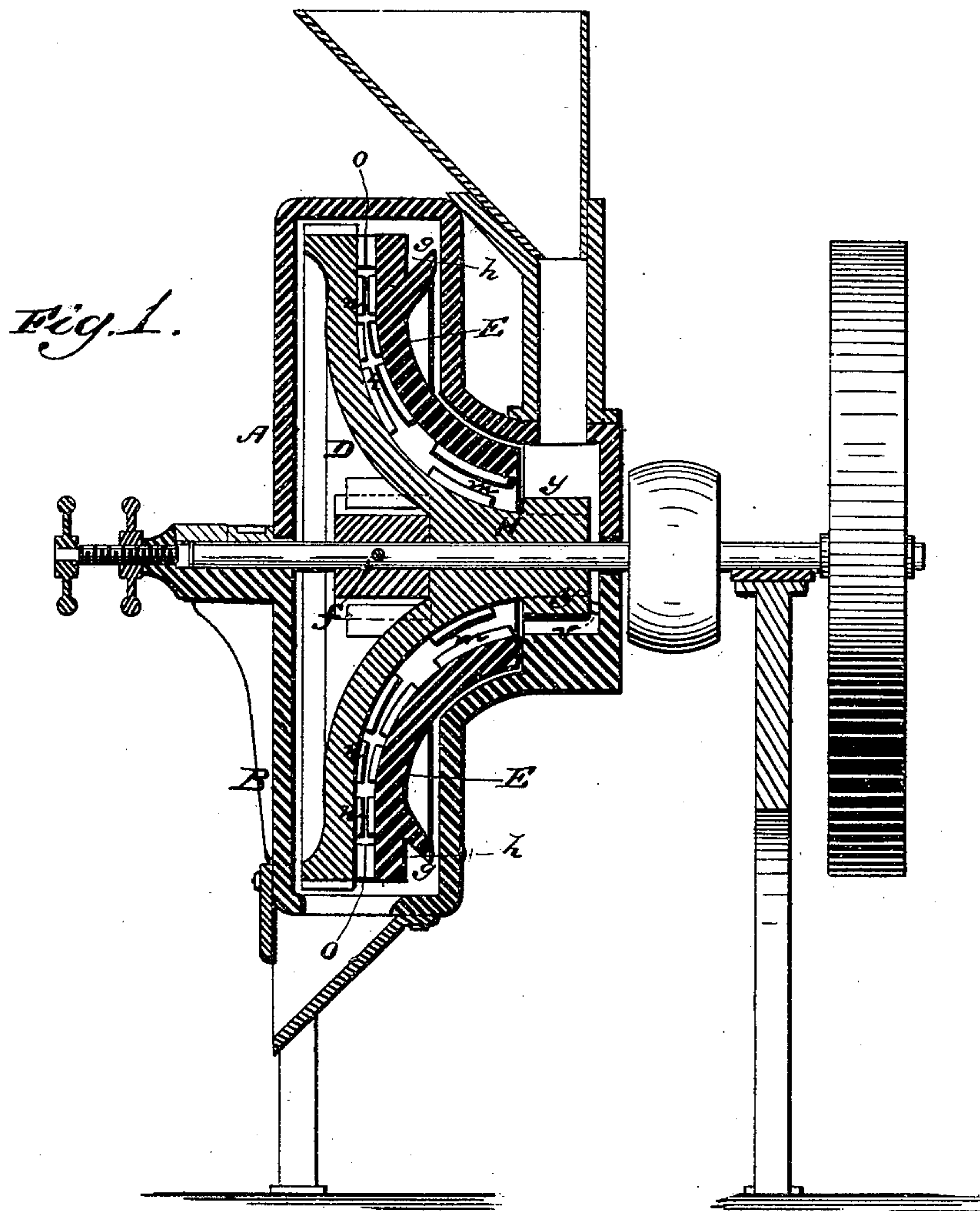
J. F. WINCHELL.

4 Sheets—Sheet 1.

GRINDING MILL.

No. 273,927.

Patented Mar. 13, 1883.



WITNESSES
Emory H. Bates.
Philip L. Masi.

INVENTOR
James F. Winchell.
by Anderson & Smith
his ATTORNEYS

(No Model.)

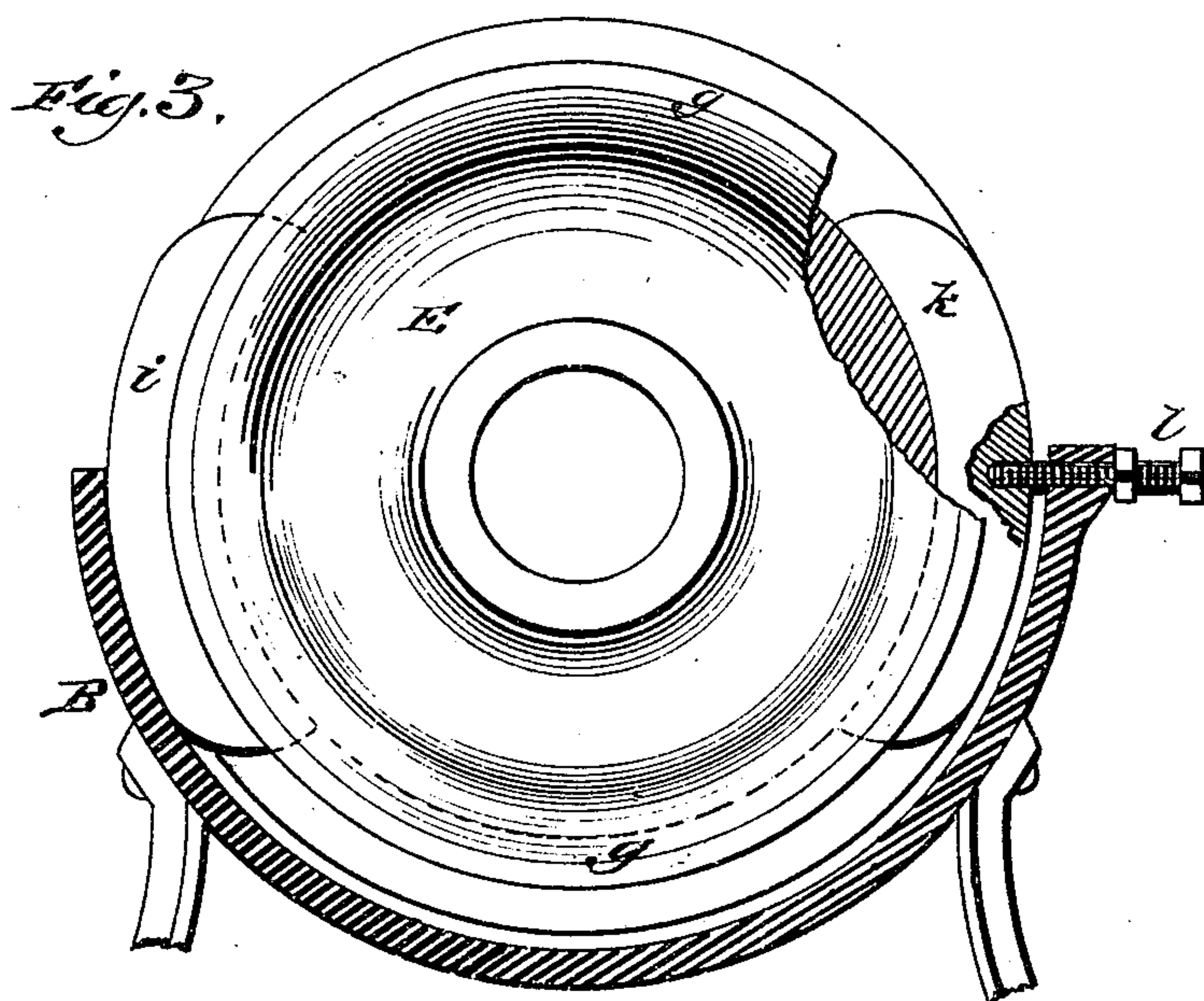
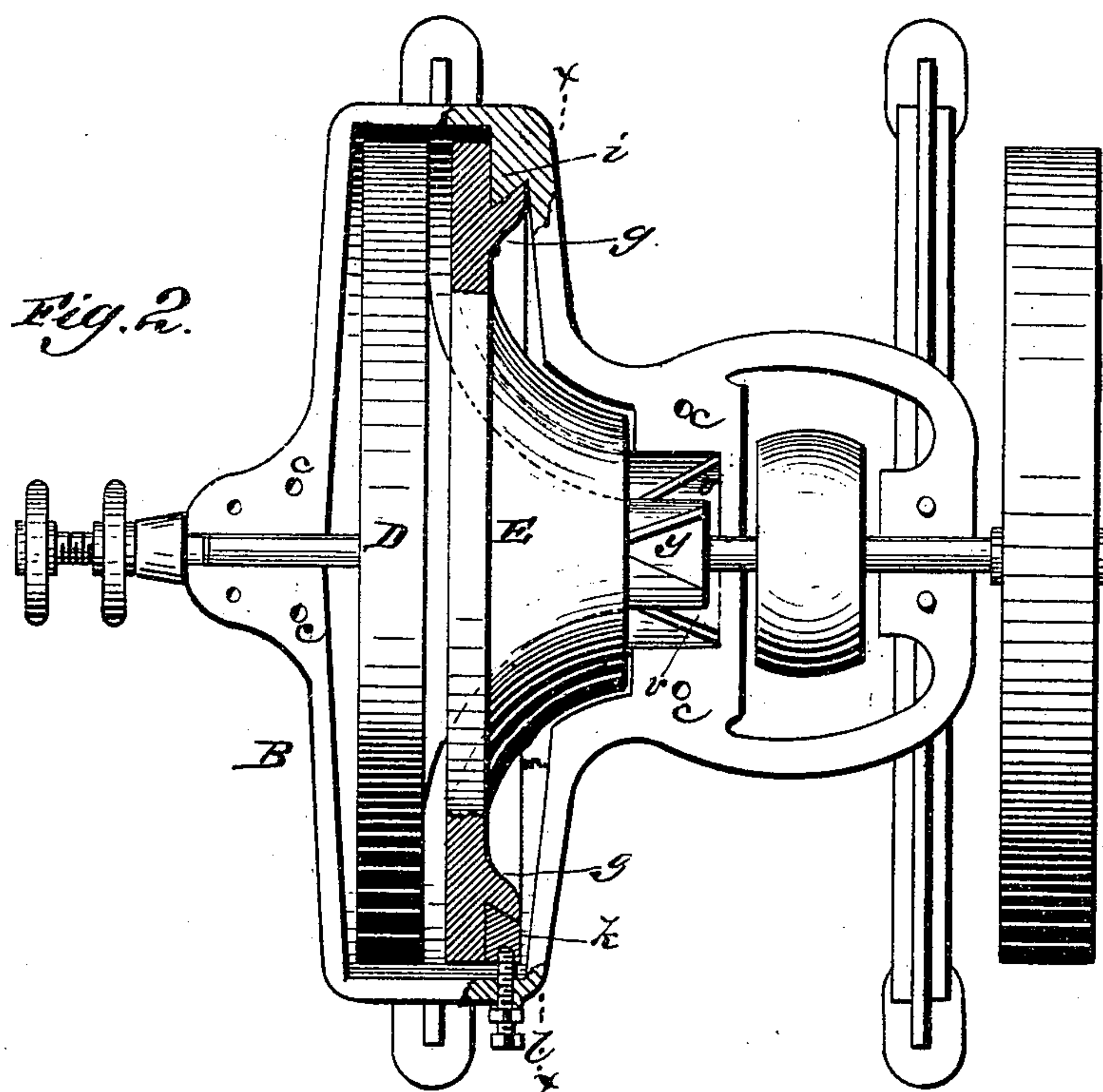
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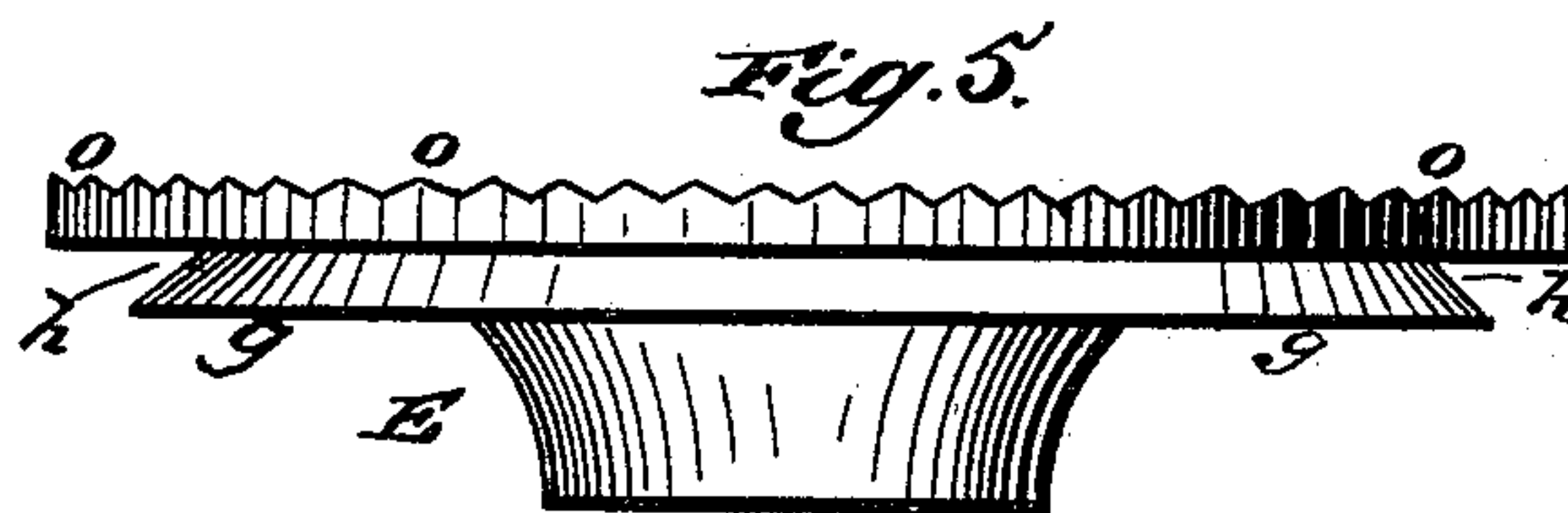
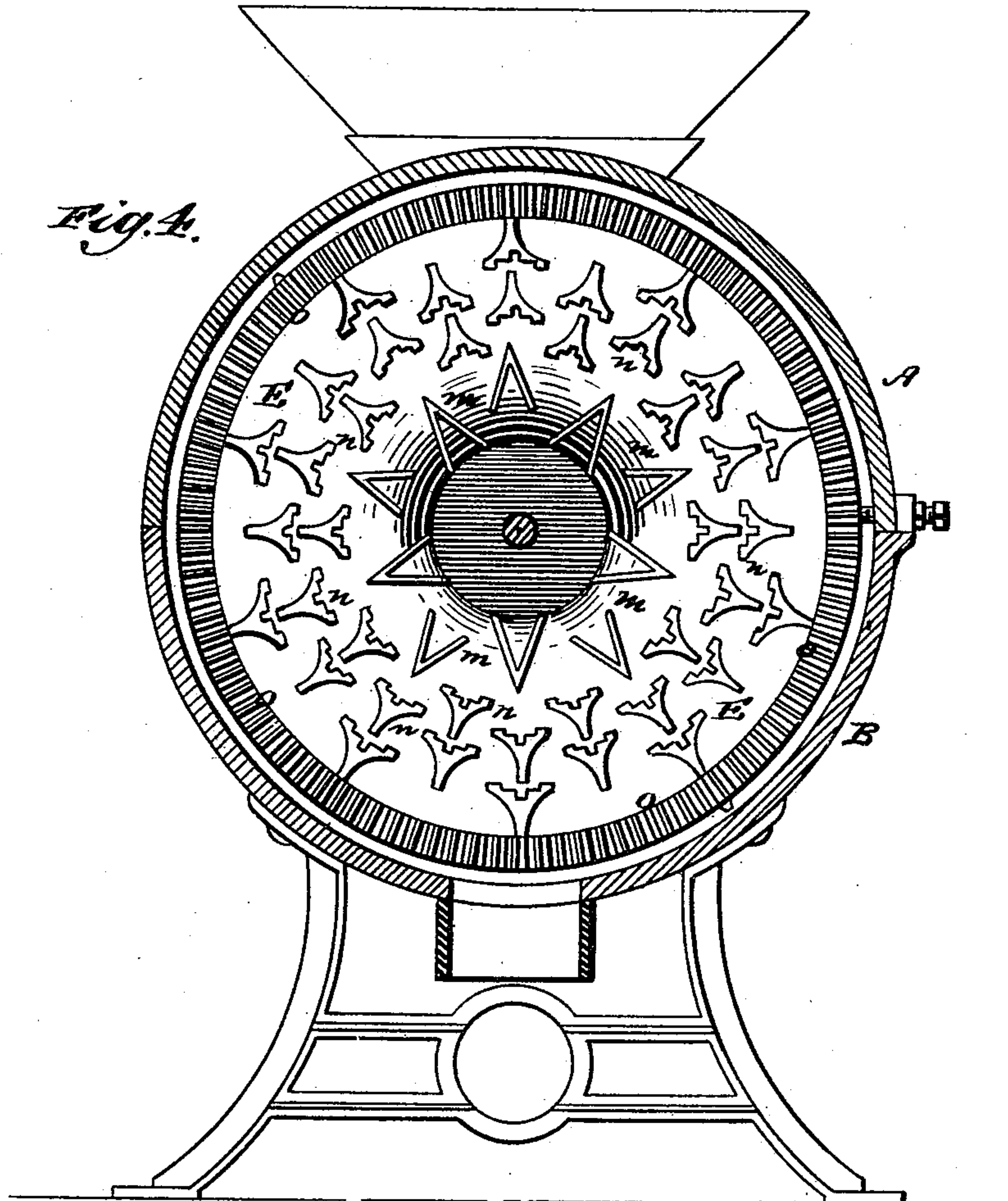
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4 Sheets—Sheet 4.

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Fig. 6.

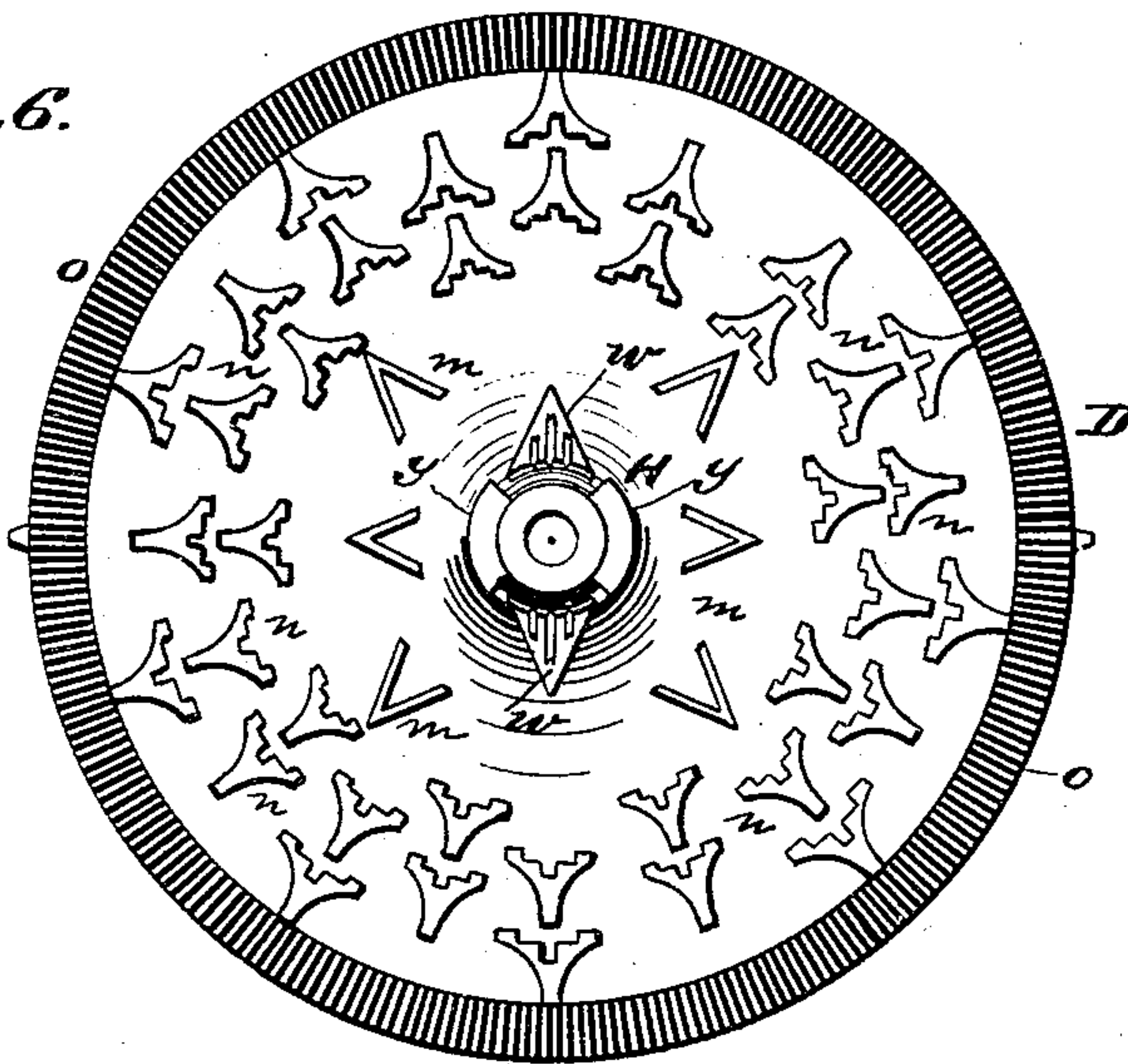
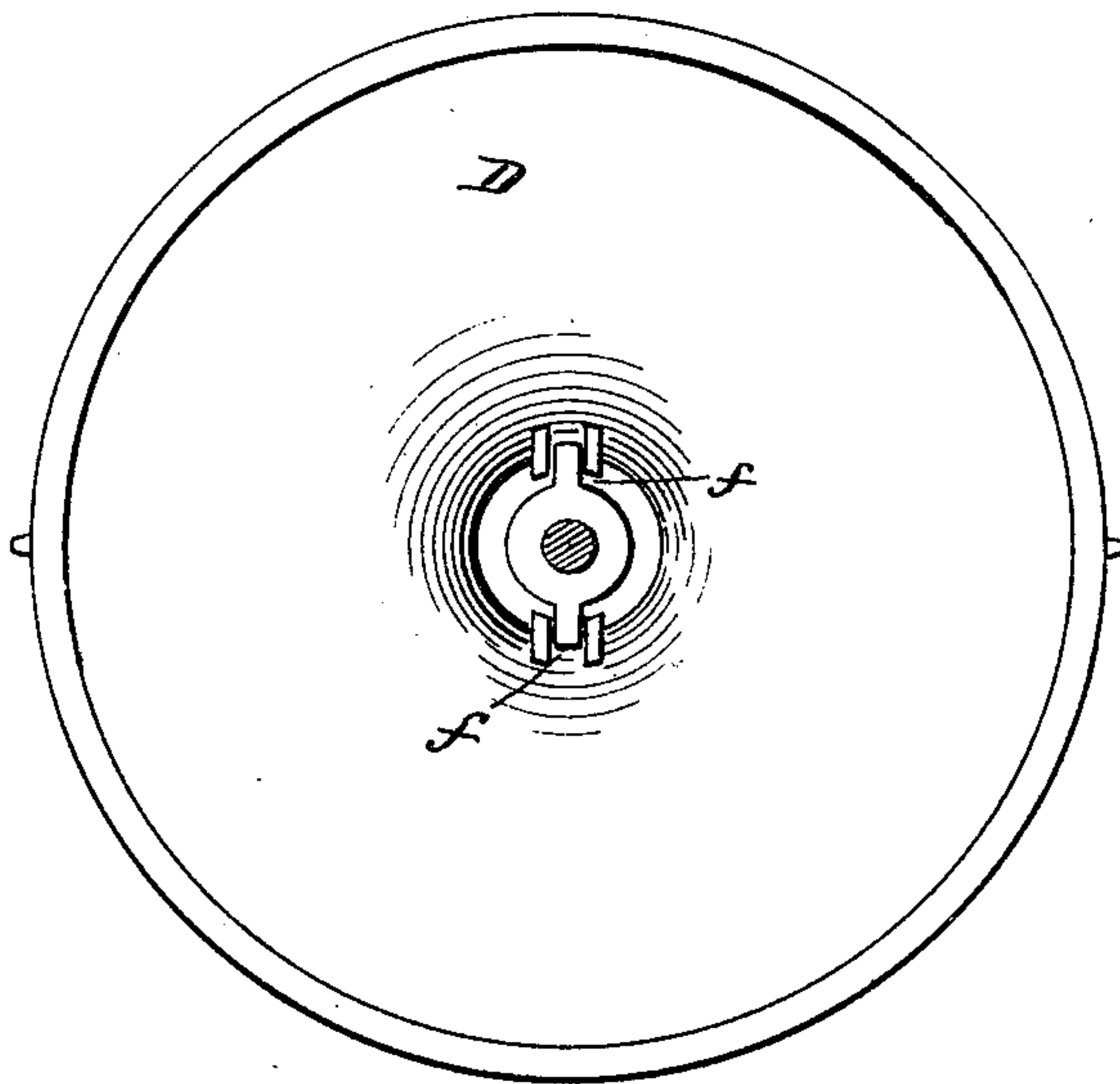


Fig. 7.



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UNITED STATES PATENT OFFICE.

JAMES F. WINCHELL, OF SPRINGFIELD, OHIO.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 273,927, dated March 13, 1883.

Application filed June 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. WINCHELL, a citizen of the United States, and a resident of Springfield, in the county of Clarke and State of Ohio, have invented a new and valuable Improvement in Grinding-Mills; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 is a partial vertical sectional view. Fig. 2 is a plan view. Fig. 3 is a vertical sectional view on the line *xx* in Fig. 2. Fig. 4 is a vertical sectional view, showing the face of the disk E. Fig. 5 is an edge view of the same in a horizontal plane. Fig. 6 is a face view of the disk D, showing the dress thereon; and Fig. 7 is a back view of the same, showing the manner of keying it on the shaft.

This invention has relation to cast-iron grinding-mills; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and pointed out in the claims appended.

The letters A and B respectively designate the upper and lower sections of my case for the grinding devices. Each of these sections is cast in one piece, and the two are united by bolts or screws introduced through the openings *c*.

Two grinding-disks are employed in my mill, and are arranged vertically, as shown. Of these disks, D is rigidly attached to the shaft, while E is arranged, as hereinafter described, in such manner that it will rotate with the shaft only when obstructed by unyielding substances coming between the grinding-surfaces of the disks. It will be observed that wheel D is keyed to the shaft, as shown at *f* on Figs. 1 and 7, and that disk or burr E is arranged against the wall of the casing and partly surrounds the hub of disk D. The means employed for securing wheel E in position are as follows: I construct a flange on the periphery of said disk or burr, which extends entirely around the same. This flange is marked *g*, and it forms between the main body and its extremity a V-shaped annular recess, (marked *h*, Fig. 1.) I also form on one wall of the case a wedge-shaped extension marked *i*, which

corresponds in shape with recess *h*, and fits therein, as shown in Figs. 2 and 3 of the drawings. On the opposite side of the casing I arrange a wedge-shaped block, *k*, which is adjustable, and is adapted to fit within the recess *h*. I furthermore make an opening through the wall of the casing, and pass therethrough a jam-screw, *l*, the point of said screw passing into the rear side of said adjustable block. This block is marked *k* on the drawings. It is obvious that while disk or burr E is held in position by screw *l* the firmness and rigidity of such holding is regulated at will by manipulating said screw. The disk or burr D has a hub marked H, which passes through the center of disk E and surrounds the working-shaft. On the outer end of this hub are formed the feeding-flanges *y*. These flanges are of the usual form found in iron-disk grinding-mills. The wall of the casing has a large central opening to receive the hub H; but I also utilize this opening by arranging therein, upon its wall, V-shaped feeding-flanges, (marked *v* on the drawings.) These flanges, working in conjunction with flanges *y* on the hub H, serve to feed the grain to the grinding-surfaces of the disks.

The grinding-surfaces of the disks or burrs are formed as follows: Near the center of wheel E, I make a series of raised V-shaped figures of the character shown by the letter *m*. These are preferably ten in number, and arranged as shown. I furthermore form a series of radial raised Y-shaped figures having curved converging walls and stepped bases, as shown on Fig. 4, and marked *n*. These figures *n* occupy the central portion of the face of the disk. Outside the figures *n*, and leading to the periphery of the disk, I make fine serrations, as shown at *o*. Both of my grinding-disks are provided with the dress *m* and *n* and serrated surfaces *o*.

The grinding-surface of disk D corresponds in construction with that of disk E, except in the following particulars: I form two raised V-shaped ribs on the face of the disk D, near its center, at acute angles with the feeding-flanges *y*, and make grooves therein, as shown at *w*, Fig. 6. These ribs *w* are the first portion of the dress to act upon the grain and crack it. It will be observed, also, that the V-shaped cracking-ribs *m* on disk D are less in number than those on disk E. For example, they are

shown on the drawings to be six in number, while on burr E they are ten. The object of this arrangement is to secure a cracking or preliminary grinding action between the ribs
5 *m* in one place only at the same time.

The usual hopper and driving mechanism are of course indispensable in the construction of my apparatus.

The operation is as follows: The grain for
10 grinding is deposited in the hopper and the machinery set in motion. The grain passes downward between the flanges *v* on the wall of the casing and flanges *y* on the hub of disk D, and is thereby fed to the disks. The raised
15 figures or ribs *w* on disk D are first encountered, and next the ribs *m* on both disks. These serve to crack the grain. Next it passes the curved Y-shaped figures *n*, between which it is further pulverized, and, finally, is thor-
20 oughly ground between the fine serrations *o*, and passes off through a suitable spout, ready for use.

In operating my mill the set-screw *l* is turned until the desired rigidity is secured for the
25 disk E for grinding corn or other like materials

without imparting any motion whatever to said disk; but whenever a stone or other hard unyielding substance becomes interposed between the grinding-disks, the disk E slips over the block *k* and rotates on the shaft with disk
30 D, preventing damage to the grinding-surfaces or the machinery.

I claim as my invention—

1. In a grinding-mill, the disk D and the disk E, having flange *g*, forming recess *h*, in
35 combination with the case-wall having extension *i*, adjustable block *k*, and jam-screw *l*, substantially as and for the purpose specified.

2. In grinding-mills, the disk E, provided with the grinding-surfaces *m*, *n*, and *o*, in com-
40 bination with the disk D, provided with like surfaces *m*, *n*, and *o*, and raised figures *w*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence
45 of two witnesses.

JAMES F. WINCHELL.

Witnesses:

THEO. MUGEN,
PHILIP C. MASI.