

No. 777,922.

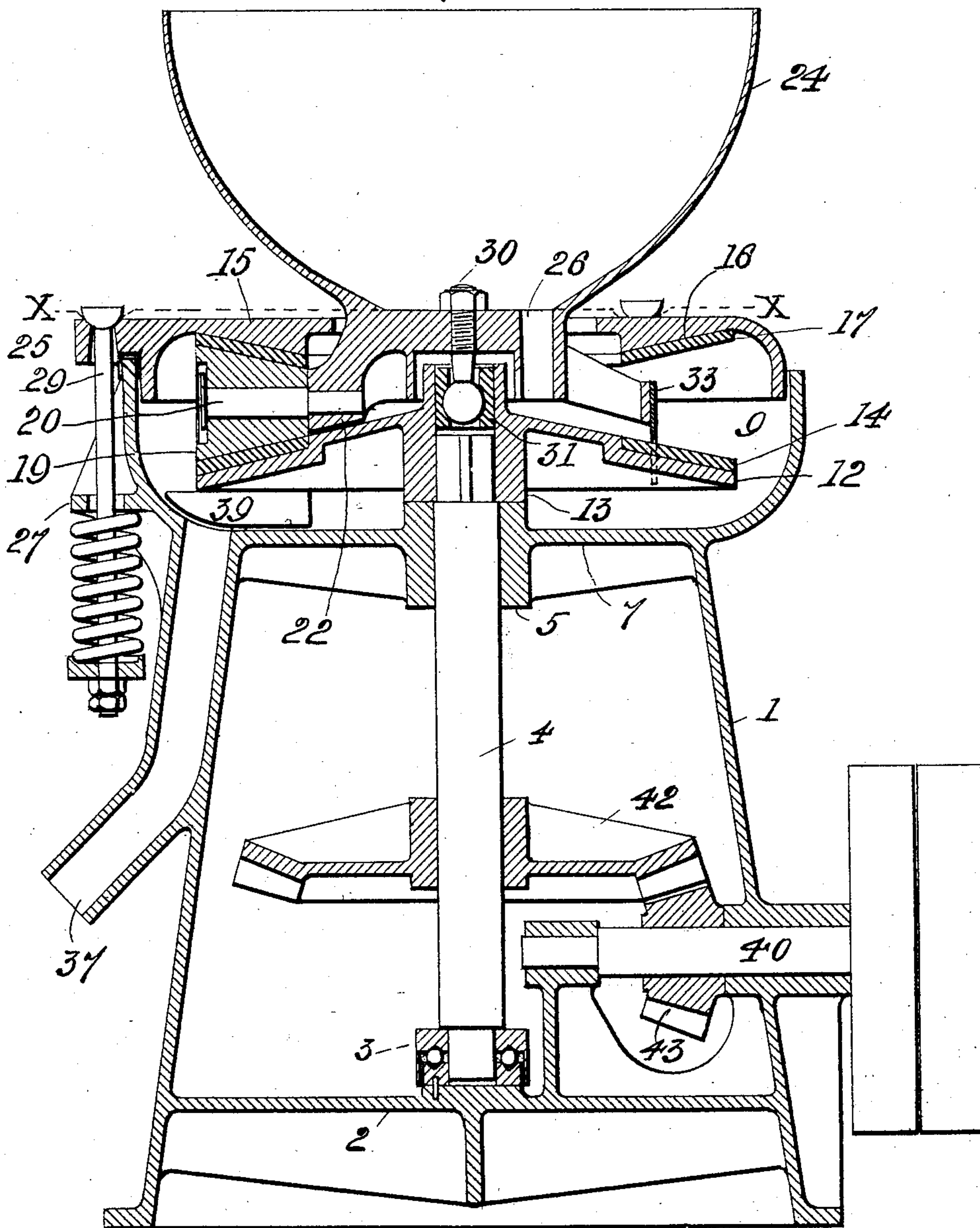
PATENTED DEC. 20, 1904.

A. J. SACKETT.
PULVERIZING MILL.
APPLICATION FILED JULY 2, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

J. H. Hoffman

A. Q. Bayley.

Inventor

Inventor
August J. Sackett,
by Wm W. T. Howard,
Attorney

Attorneys

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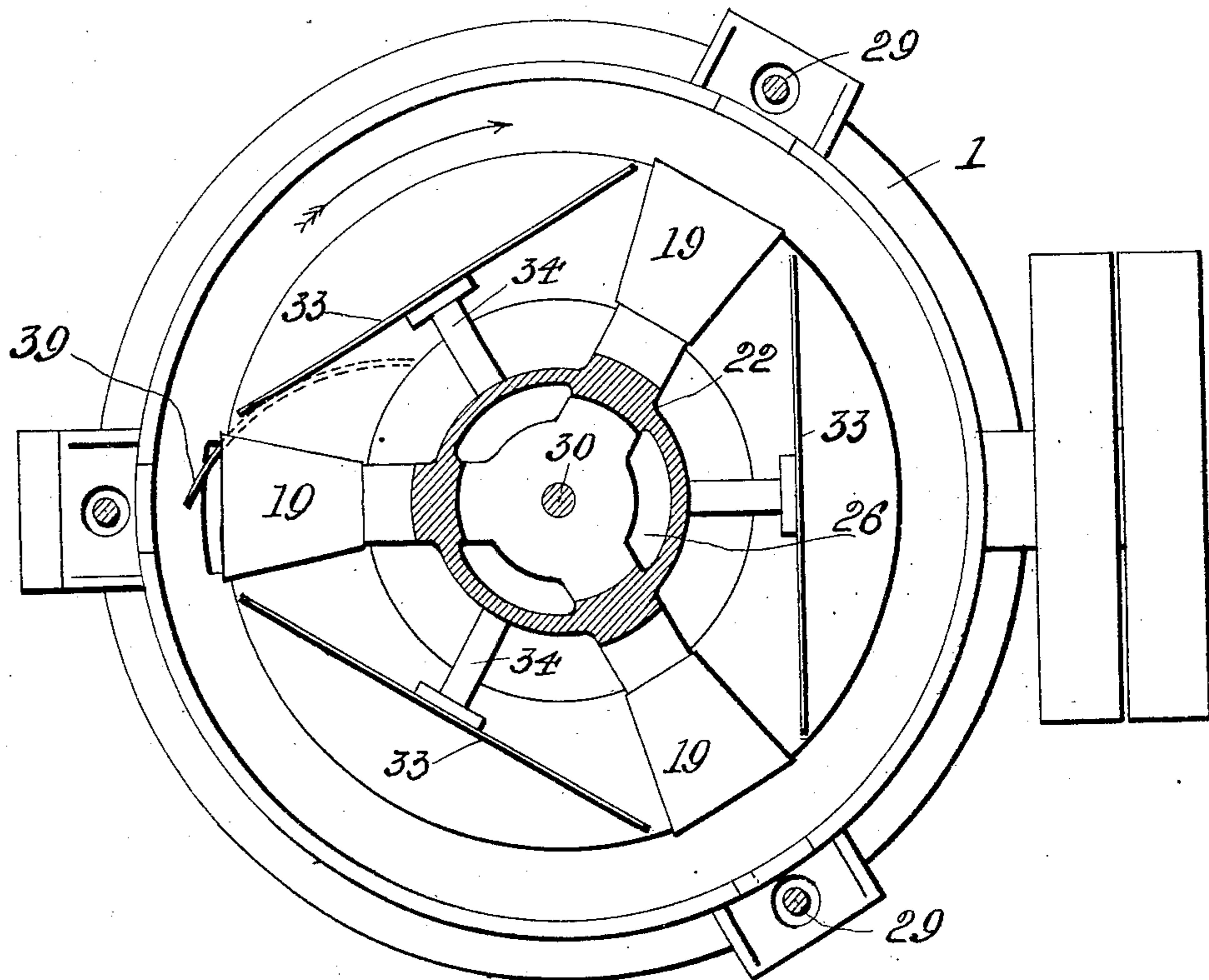
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NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2



Witnesses

J. H. Hoffmann

A. O. Bayley.

Inventor

August J. Sackett

by W. H. I. Howard,

Attorneys

UNITED STATES PATENT OFFICE.

AUGUST J. SACKETT, OF BALTIMORE, MARYLAND.

PULVERIZING-MILL.

SPECIFICATION forming part of Letters Patent No. 777,922, dated December 20, 1904.

Application filed July 2, 1904. Serial No. 215,086.

To all whom it may concern:

Be it known that I, AUGUST J. SACKETT, of the city of Baltimore and State of Maryland, have invented certain Improvements in Pulverizing-Mills, of which the following is a specification.

This invention relates to certain improvements in mills adapted for the reduction of materials, such as phosphate rock which has been previously crushed to comparatively small particles, as will hereinafter fully appear.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a vertical central section of the improved mill; and Fig. 2 a section of Fig. 1, taken on the irregular dotted line X X and with a certain annular plate removed.

Referring now to the drawings, 1 is the frame or stand of the mill, shown as a hollow frustum of a cone, having a ribbed bottom 2. The bottom 2 is provided with an antifriction-step 3, in which rests the lower end of the central rotary shaft 4, and this shaft is journaled in a boss 5, forming a part of the ribbed plate 7, which constitutes the top of the frame 1. The plate 7 is extended beyond the frame 1 and curved upward to form a receptacle or chamber 9, in which the pulverizing operation is performed.

12 is a conical disk, the hub 13 of which is secured to the upper end of the shaft 4 and rests on the central boss 5 of the plate 7.

14 is a ring of some material, such as chilled cast-iron, which is harder and less liable to wear than the disk 12, secured in a rabbet formed in the disk 12 for its reception.

15 is an annular plate, having an annular conical undersurface 16, which, like the disk 12, is fitted with a chilled ring 17.

19 19 are conical rolls, preferably made of chilled cast-iron and shown as three in number, placed loosely on studs 20, which extend radially from the central spider 22. These rolls are situated between the conical rings 14 and 17, attached, respectively, to the conical disk 12 and the plate 15 and are revolved around the shaft 4 by the rotation of the disk 12.

24 is a hopper into which the materials to be ground are placed. It is shown as integral with the spider 22, and consequently rotates with it, and the part of the plate 15 which constitutes the bottom of the hopper is provided with apertures 26, which allow the unground materials contained in the hopper to fall to the upper surface of the conical rotary disk 12.

The edge of the plate 15 is turned down so as to enter loosely and practically close the receptacle or chamber 9 and provided with lugs 25, through which and similar lugs 27 on the exterior surface of the receptacle 9 extend the spring-held holding-bolts 29.

The spider, with its conical rolls, is centralized by means of the bolt 30, which is screwed into the plate 15 with its lower end resting in a block 31, adapted to have a vertical sliding movement in the upper portion of the hub 13 of the conical disk 12. This construction allows of the lifting of the plate 15 as the materials pass between the conical rolls and the plates 14 and 17, and by making the end of the bolt spherical and the hole in the block through which the bolt passes considerably larger than the bolt the said plate may be tilted without placing an injurious strain on any of the operative parts of the mill.

33 33 are plates held to the spider 22 by means of studs 34, which extend between the outer or larger ends of adjacent conical rolls to prevent the escape of unground materials by keeping the same within the circular path of the rolls.

37 is a discharge-chute, and 39 a curved plate which rotates with the conical disk 12 in practical contact with the bottom of the receptacle 9 to carry the ground materials to the chute.

The mill is driven from the driving-shaft 40 through the medium of the beveled gear-wheels 42 and 43.

The materials after being crushed to a proper size by means of other apparatus are placed in the rotating hopper 24 and pass thence through the apertures 26 to the upper face of the conical disk 12 and in the path of the conical rolls, which are rotated on their axes and revolve around the central shaft.

It will be understood that as inwardly-extending imaginary lines parallel with the inclined surfaces of the plates 14 and 17 will meet at the center of the shaft 4 and the rolls touch the said plates throughout their width the grinding operation is effected with little friction and wear of the operative surfaces.

I claim as my invention—

1. In a pulverizing-mill, a rotary, and a fixed disk, the said disks having opposed conical faces, yielding devices to draw one disk toward the other, and means to conduct materials to be pulverized between the said disks, combined with conical rolls which are interposed between the said disks, and in the circular movement of the rotary disk are rotated on their axes, and revolved around the said fixed disk, substantially as specified.

2. In a pulverizing-mill the combination of

a pulverizing-chamber, a conical-faced disk situated near the bottom of said chamber with means to rotate the same, a loosely-held spider carrying rotary conical rolls which in the rotation of the conical-faced disk are rotated on their axes and revolved around a common center, a covering plate or disk for the pulverizing-chamber having a conical lower surface, means to yieldingly hold the conical surface of the said covering-plate in contact with the conical rolls, and means to conduct the materials to be pulverized through the said spider to the surface of the said rotary conical-faced disk, substantially as specified.

AUGUST J. SACKETT.

Witnesses:

OREGON MILTON DENNIS,
WM. T. HOWARD.