Mar. 27, 1923. 1,449,958.

O. SCHIFFERDECKER.

GRINDING DISK.

FILED MAR. 31, 1921.

Fig. 1

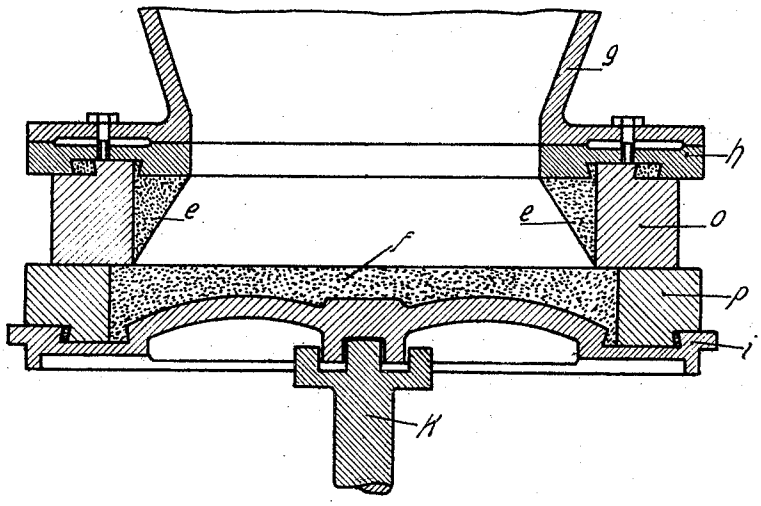
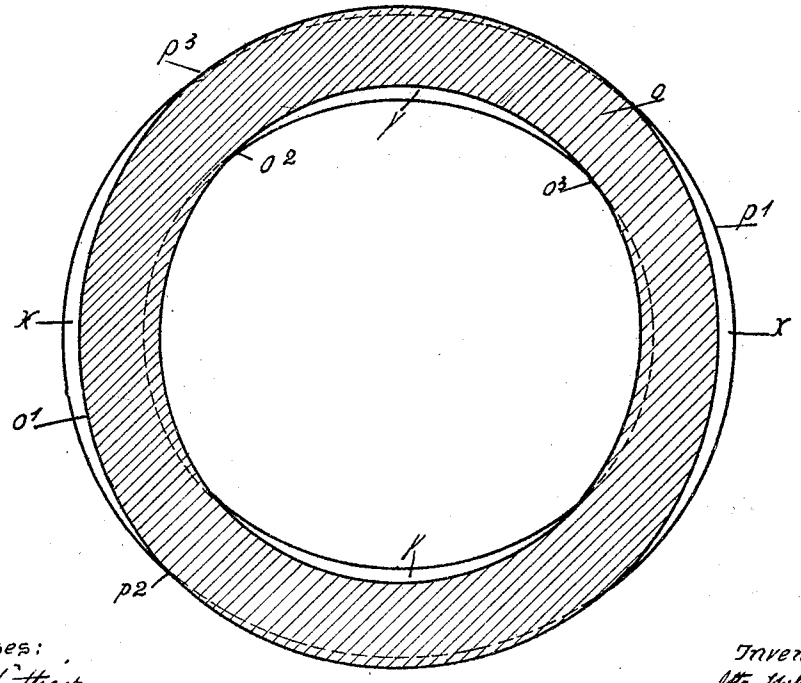


Fig. 2



Witnesses:

Inventor:
Otto Schifferdecker
By
Attorney:

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UNITED STATES PATENT OFFICE.

OTTO SCHIFFERDECKER, OF WORMS, GERMANY.

GRINDING DISK.

Application filed March 31, 1921. Serial No. 457,548.

To all whom it may concern:

Be it known that I, OTTO SCHIFFERDECKER, a citizen of the German Republic, residing at Worms, Germany, have invented certain new and useful Improvements in Grinding Disks (for which I have filed an application in Germany December 2, 1913, and in Great Britain June 15, 1914), of which the following is a specification.

This invention relates to improvements in grinding disks and more especially to those used in the colour industry for grinding oil colours. In such grinding mills, one of the grinding disks, usually the upper, is provided with a stationary feed hopper whilst the lower disk rotates co-axially with the fixed upper disk. This arrangement causes grooves or ridges to be formed on the grinding faces or edges and these ridges interfere with the efficient grinding and prevent the free egress of the ground colour. This reduces the output of the mill. When the working is carried on for a long time the two disks get interlocked the one with the other so that the material to be ground cannot pass any more, the grinding disks having to be rearranged.

The object of the invention is to avoid these inconveniences and to improve besides the efficiency of the grinding.

According to this invention the grinding mill is provided with stones or grinding disks which mutually overlap at opposite sides on their bounding edges. In this way each disk, when rotating, is able to protrude with part of its grinding surface over the circumference of the other disk at all points and thus effectually prevents the formation of grooves as the two disks mutually grind one another into flat surfaces.

In order that the invention may be clearly understood, I shall proceed to describe the same with reference to the form of construction shown by way of example in the accompanying drawings, wherein:—

Fig. 1 shows two disks of a grinding mill in cross section together with the necessary parts of the mill.

Fig. 2 is a plan of the disks with adjacent parts omitted.

In carrying the invention into effect according to the form shown the two rings o and p are arranged the one above the other and the upper ring o is fixed whilst the lower ring p rotates. The ring o is cemented by cement e to the cementing disk h upon which the hopper g is screwed. The lower rotating ring p is mounted on a cementing disk i carried by a shaft k, to which it is keyed or fixed so as to rotate with the said shaft. The central hollow of the disk p is filled up with cement f. The grinding rings o, p may be made of porcelain, iron, or a hard casting, a hard stone or any other suitable material.

According to this invention the two rings o, p are of oval shape, being bounded by elliptical lines p', o' or of a similar figure. Both ellipses are congruent as regards their co-operating faces. It is evident that owing to this shape two overlapping disks are formed. The crescent shaped parts p^2, p^3 and o^2 o^3 represent the inner and outer overlapping parts of the two grinding rings which are formed when said rings are rotating. When the mill is in operation an alternating overlapping of the two disks takes place in such a manner that the lower rotating disk p overlaps the upper ring o, externally at x, x, and internally at y, y. In this way an automatic and mutual grinding of the faces is ensured. Further the internal overlap at y, y draws away a portion of the unground colour from the hopper m and feeds it between the acting faces, said colour being thoroughly ground between the disks and ejected under centrifugal action at the outer overlaps x, x. In this way it is possible to double the output of the mill with oval grinding disks as compared with concentric grinding disks, as well as regards the quantity as the quality of the ground material.

Overlapping disks might be obtained by other means. Thus circular disks set eccentrically might be used to produce the same result or the axis around which the disks rotate could be made movable in a closed curve or the disks, when arranged with moving axis of rotation, could be made to rotate simultaneously around their own axles. In every case the overlapping feature is the necessity by means of which the mutual grinding of the faces right up to their edges is obtained.

I claim:—

An improved mill for grinding colours and the like comprising in combination two grinding disks of which one is fixed and the other rotatable, two grinding rings each connected with one of said grinding disks and being each of oval shape internally and

externally so that at two opposite points the inner- and outer-diameter of the one grinding ring is greater than the corresponding diameter of the other grinding ring, the inner- and outer-diameter of the last mentioned grinding disk being greater at two opposite points situated perpendicularly to the opposite points of the first mentioned grinding ring, and means for mounting and means for driving the grinding disks or grinding rings.

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

OTTO SCHIFFERDECKER.

Witnesses:
FRITZ BERG,
KARL KLING.