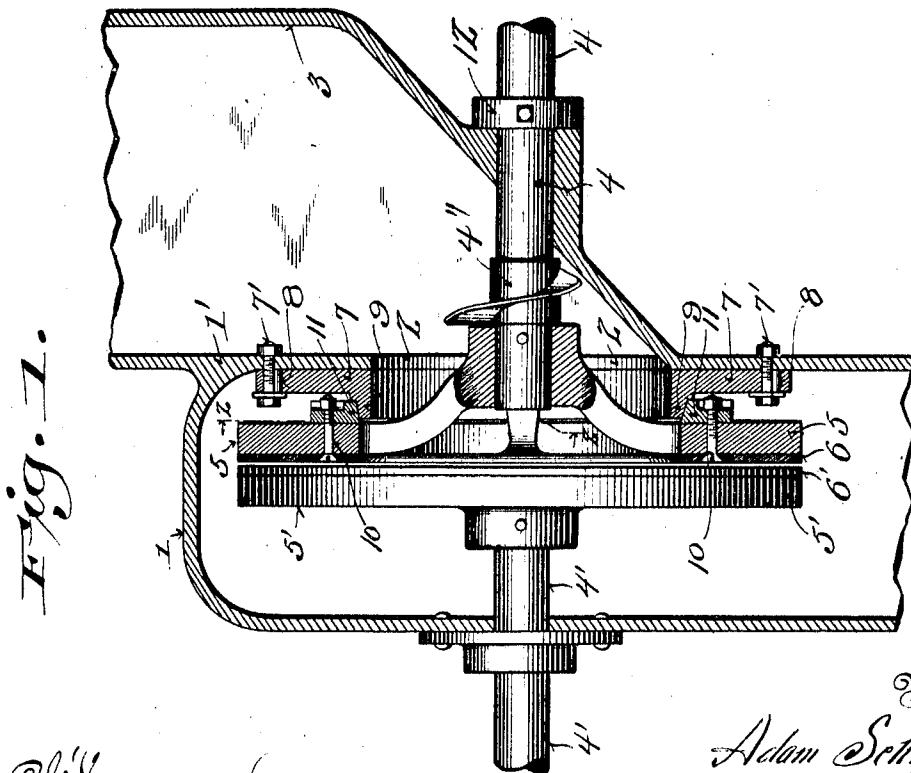
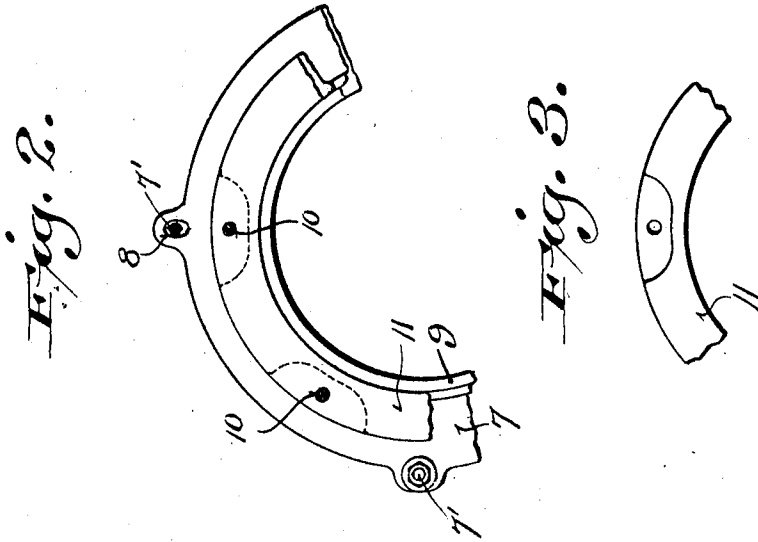


A. SCHROEDER.
 ATTRITION MILL.
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1,039,326.

Patented Sept. 24, 1912.



Witnesses:
 C. A. Young,
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UNITED STATES PATENT OFFICE.

ADAM SCHROEDER, OF BARTON, WISCONSIN.

ATTRITION-MILL.

1,039,326.

Specification of Letters Patent. Patented Sept. 24, 1912.

Application filed June 17, 1912. Serial No. 703,994.

To all whom it may concern:

Be it known that I, ADAM SCHROEDER, a citizen of the United States, and resident of Barton, in the county of Washington and State of Wisconsin, have invented certain new and useful Improvements in Attrition-Mills; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention refers to attrition mills, its object being to provide a simple, effective and economical means for effecting a tight joint between the non-adjustable grinding disk and delivery throat of the mill housing, whereby the finest seed or analogous material may be delivered between the grinding surfaces of the respective disks, without leakage of said material between the disk and delivery throat, the joint being rendered practically air-tight by nested engagement of a fixed bridging collar and a sealing ring that is carried by the adjacent grinding disk. The construction and arrangement of the bridging collar and sealing disk are such that the same may readily be attached to mills of the general character to which my invention refers.

With the above object in view the invention consists in certain peculiarities of construction and combination of parts as set forth hereinafter with reference to the accompanying drawings and subsequently claimed.

In the drawings Figure 1 represents a sectional elevation of a portion of an attrition mill embodying the features of my invention, the view showing parts broken away and parts in full for clearness of illustration; Fig. 2, a detailed sectional face view of a portion of the sealing ring and collar, the section being indicated by line 2—2 of Fig. 1, and Fig. 3, a fragment of the sealing ring looking at the reverse side from that shown in Fig. 2.

Referring by characters to the drawings, 1 represents a housing having a wall 1' that is provided with a circular delivery throat 2, which throat is incased by a hopper 3 that forms part of said housing. Journaled in the housing are the usual alined oppositely rotative power shafts 4, 4', which power shafts carry grinder disks 5, 5', respectively, the grinder disk 5', in conjunction with its shaft, being in this form of mill longitudinally adjustable (by mechanism not shown) for the purpose of regulating the

grade of milled material. The non-adjustable grinding disk 5 is formed with a rim connected by spokes to a hub portion whereby an opening is provided through which the material passes to the grinding surfaces, said non-adjustable disk being in juxtaposition to the delivery throat 2. Each of these disks is also provided with grinding plates 6, 6' respectively, of any desired type, it being understood that all of the above described mechanism is usual to grinding mills of the character mentioned.

A bridging collar 7 is secured to the housing wall 1 by means of bolts 7' which engage said housing wall and pass through apertured ears 8 of the collar, the bolts being of such dimensions relative to the ear apertures as to permit adjustment of the collar in all directions, whereby it can be set concentric with the non-adjustable grinding disk 5. The collar 7 is provided with a horizontally disposed flange 9 having an outer tapered face and shoulder; that forms a concentric seat about the disk axis, it being understood that the inner face of the collar and its flange portion extend inwardly from the throat 2 and form a feed channel over which the material to be ground passes in its travel to the inner surface of the rim portion of the grinding disk. Secured to the rim portion of the grinding disk 5 by bolts 10 is a sealing ring 11, which ring, due to its thickness, is offset from the disk and provided with a tapered inner circular face for nested engagement with the outer tapered face of the collar flange 9, the inner tapered face being approximately the same diameter as the inner face of the rim portion of the disk to which it is attached. By this construction it is apparent that the material to be ground will flow over the flanged collar and closed joint between it and the sealing ring, through the spider portion of the disk, to the grinding plates of the pair of disks, the said material being ground and discharged in the usual manner. Furthermore by the sealed joint thus formed between the rotatory disk members and fixed collar, material cannot sift therethrough, nor is it possible for the current of air induced through the movement of the disks to draw the finest particles through said joints, the same being practically an air seal.

Heretofore in mills of this character the joint between the throat and non-adjustable disk has caused more or less of the material

to pass out into the machine in an unground condition and thereby injure the grade of milled material, while with the arrangement of collar and ring as described this objectionable feature is entirely overcome, it being apparent that when the nested joint between said ring and collar becomes worn that the wear can be readily taken up by movement of the shaft 4 longitudinally, and thereafter locking said shaft by a set collar 12, such as shown in connection with the shaft or other suitable mechanical arrangement. It will also be observed that by employing an apertured ear in connection with the bridging collar as described, said collar may be so adjusted to the wall of the housing as to be self centering with respect to the rotatory ring which is carried by the disk 5'.

20 In order to economize space the outer face of the ring 11 is preferably provided with countersunk seats through which the apertures for the retaining bolts 10 pass and by this countersunk arrangement clearance for the nuts of the retaining bolts 10 is had, whereby said nuts are not rendered liable to contact with the adjacent face of the bridging collar.

30 In practice it has been found that where wet grains are fed to the grinding mecha-

nism there is some liability of the grain choking at the mouth of the hopper and to overcome this liability I provide a spiral flight 4'' which is secured to the shaft 4 within the hopper opposite the delivery throat 2. This flight forms an agitating device for the moist grain and will positively feed the same to the grinding mechanism.

I claim:

In an attrition mill having a housing provided with a delivery throat, aligned oppositely rotative power shafts and grinder disks carried thereby; the combination of a bridging collar adjustably secured about the delivery throat of the housing, the collar being provided with a flange having an outer tapered circular face, and a sealing ring secured to one of the disks, the sealing ring being provided with an inner tapered circular face for engagement with the outer tapered circular face of the collar flange.

In testimony that I claim the foregoing I have hereunto set my hand at Barton in the county of Washington and State of Wisconsin in the presence of two witnesses.

ADAM SCHROEDER.

Witnesses:

GEORGE HIRSCHBAECK,
WM. F. GASTON.