Aug. 18, 1936. O. A. JOHNSON 2,051,716

GRINDING MILL

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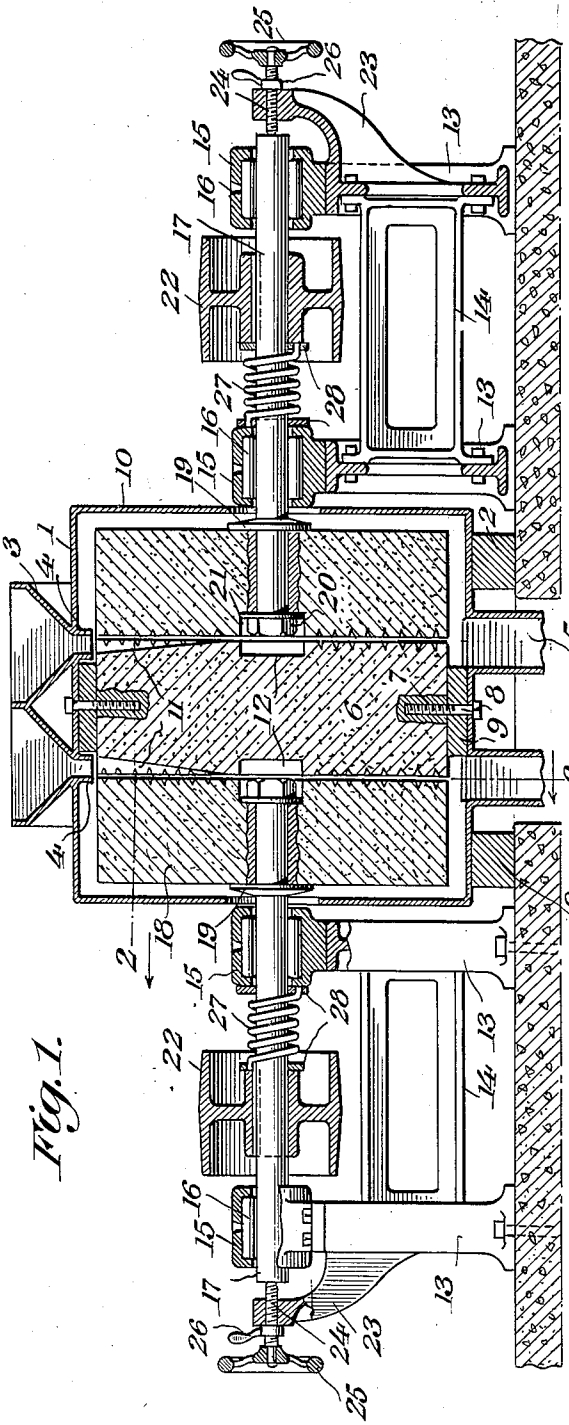

Fig. 1.

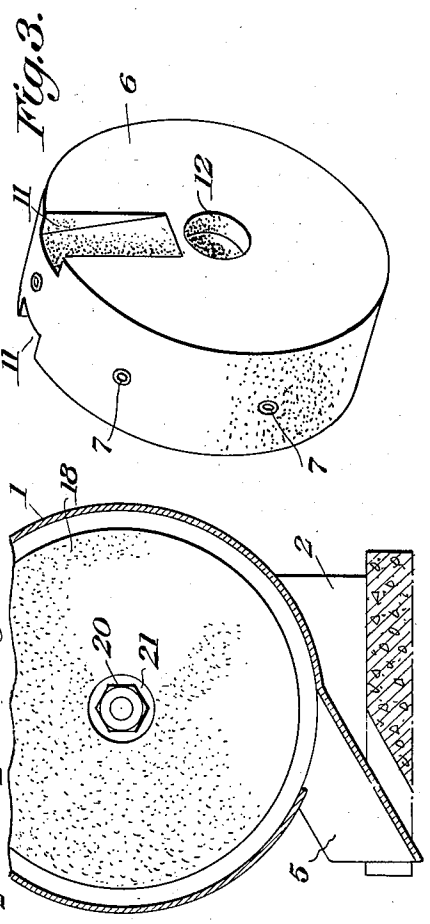

Fig. 3.

Fig. 2.

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GRINDING MILL

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1 Claim. (Cl. 83—8)

This invention relates to grinding mills and its general object is to provide a mill that is primarily designed for grinding different kinds of grain simultaneously, or the same kind at different degrees of fineness.

An important object of the invention is to provide a grinding mill that includes a stationary stone disposed between rotary stones, with the latter adjustable with respect to the stationary stone and in a manner whereby the adjustment is semi-automatic.

A further object of the invention is to provide a grinding mill that can be operated with minimum power, is easily adjustable, includes minimum working parts, is simple in construction, inexpensive to manufacture and install, and extremely efficient in operation and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claim.

In describing my invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a longitudinal sectional view taken through the mill which forms the subject matter of the present invention with parts in elevation.

Figure 2 is a sectional view taken approximately on line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a perspective view of the stationary mill stone.

Referring to the drawing in detail, the reference numeral 1 indicates the housing of my mill which as shown is of cylindrical formation and is preferably supported in elevated position with respect to a foundation as shown, through the instrumentality of blocks 2 having rounded recesses in the upper surfaces thereof to follow the curvature of the housing.

Secured to the top of the housing are twin hoppers 3 that have spouts 4 extending into the housing in spaced parallel relation with respect to each other, while extending at an inclination from their lower portion of the housing are outlet spouts 5, and the foundation in the arrangement as shown is provided with recesses to accommodate the outlet spouts which of course communicate with the housing through the medium of openings arranged therein, as best shown in Figure 2.

The form shown includes a stationary stone 6 of circular formation and which is provided with a plurality of threaded openings 7 about the circumference thereof to receive screw bolts 8 that extend through the housing and blocks 9 for securing the stationary stone in fixed relation with respect to the housing as will be apparent. The blocks 9 may be segments of an annular spacing element, but in any event space the stationary stone from the housing. The stationary stone is secured midway between the side walls 10 of the housing, and is provided with recesses 11, there being a recess upon the opposite sides thereof and which are substantially wedge shape, with their mouth portions uppermost and disposed directly below the spouts 4 of the hoppers 3. The lower ends of the recesses merge into the outer side faces of the stone 6 adjacent to circular recesses 12 arranged centrally in the opposite sides.

Secured to the foundation and upon opposite sides of the housing 1 are frames each of which include a pair of spaced uprights 13 and each pair of uprights are secured together by a cross member 14. The upper ends of the uprights have secured thereto bearing boxes 15 which receive roller bearings 16, and extending through the bearing boxes and mounted in the roller bearings are shafts 17, the latter extending into the housing 1 through openings in the side walls thereof and have the rotary stones 18 secured thereto. For that purpose the shafts 17 are each provided with a collar 19 that act as abutting means for the stones 18 which are provided with bores extending centrally therethrough to receive the shaft 17, and the latter have screw threaded inner ends for nuts 20 that are arranged within recesses 21 disposed in the inner faces of the stones 18 in a manner to be aligned with the recesses 12, so that the nuts 20 will be aligned accordingly.

Keyed to the shafts 17 between the bearing boxes 15 are pulleys 22, there being a pulley for each shaft and secured thereto against longitudinal movement. The pulleys are of course to receive a belt for connection with suitable power means for operating the mill.

In order to adjust the rotary stones with respect to the stationary stone, I employ adjusting means which include a bracket 23 for each of the frames and the bracket of each frame is formed on and rises from the outer upright thereof. Each bracket is provided with a head having a threaded bore arranged therein to threadedly receive a screw 24 having a pointed inner end to be received in an indentation made in the outer end of its shaft, so that upon rota-

tion of the screws **24** in one direction, the shafts will be moved inwardly. The screws are each provided with a wheel **25** for actuating the same, and each screw is provided with locking means in the form of a nut **26** having a handle secured thereto, so that when the screws are adjusted, they are held in adjusted positions through the instrumentality of the locking means.

Each shaft has surrounding the same coil springs **27** that are secured to wear plates **28** or the like, having openings therein to receive the ends of the springs, and the outermost plates engage the pulleys which are keyed to the shafts and the innermost plates engage the bearing boxes, as shown in Figure 1, with the result it will be seen that the coil springs will act to hold the shafts against the screws **24** and when the latter are moved outwardly the springs will move the shafts accordingly, therefore the adjustment for the stones **18** is semi-automatic and is brought about by rotating the screws **24** through the instrumentality of their wheels **25**.

The confronting faces of the stones **6** and **18** are preferably serrated as shown so as to provide grinding surfaces, and in the use of my mill, the whole grain is disposed in either one or both of the hoppers **3** so as to be received in the recesses **11**. As the grain is ground, it will work its way between the stones and thence be passed through the outlet spouts **5**.

By employing a single stationary stone and a pair of rotary stones arranged as shown, with the relative structure, it will be obvious that grains of different kinds can be ground simultaneously, and at different degrees of fineness. Of course, the same kind of grain can be ground accordingly.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What I claim is:

In a grinding mill, a housing, inlet and outlet means for said housing, a stationary stone having threaded openings extending therein about its circumference, spacing means for said stone, means passing through the spacing means and threaded in the openings for fixing the stone within the housing in spaced relation thereto, said stone having a wedge shaped recess extending from its upper end to adjacent its center and aligned with the inlet means, a rotary stone in said casing, said stones having serrated confronting faces, a frame supported laterally of the housing, a shaft for the rotary stone and journaled in the frame, screw means for moving the shaft longitudinally in a direction for urging the rotary stone toward the stationary stone, locking means for the screw means, a pulley fixed to the shaft, wear plates surrounding the shaft and having openings therein with one plate engaging the pulley and the other the frame, and a coil spring having its end convolutions received in the openings and adapted for moving the shaft longitudinally in an opposite direction for cooperation with the screw means in adjusting the rotary stone with respect to the stationary stone.

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