O. MOBERG.

GRINDING MILL.

APPLICATION FILED DEC. 27, 1909.

953,151. Patented Mar. 29, 1910.

Fig. 1.

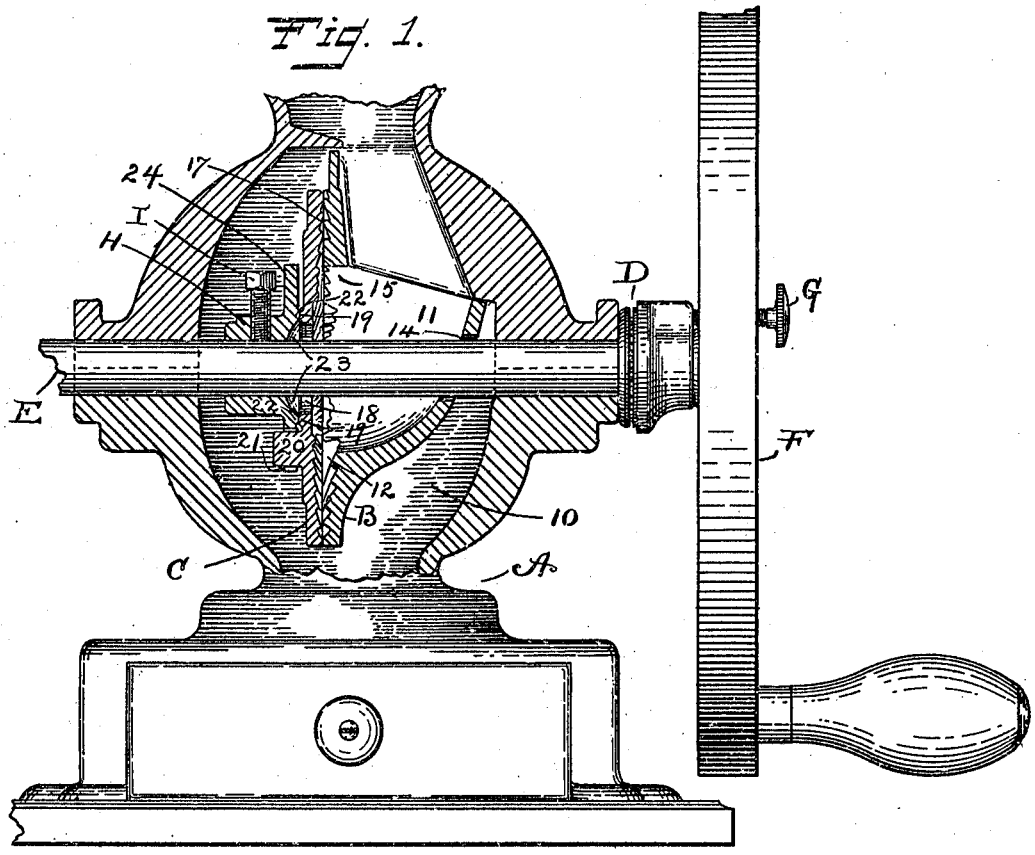


Fig. 2.

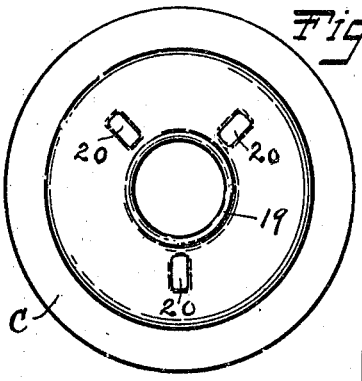


Fig. 3.

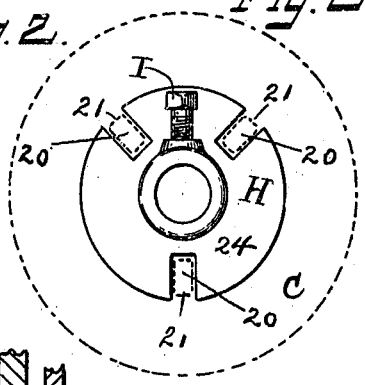
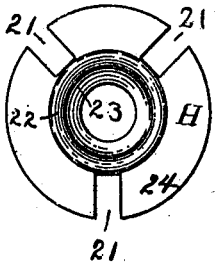


Fig. 4.



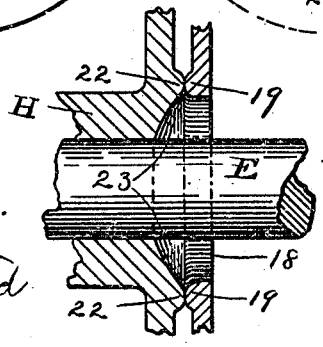


Fig. 5.

Witnesses.

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GRINDING-MILL.

953,151. Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed December 27, 1909. Serial No. 535,062.

To all whom it may concern:

Be it known that I, OSCAR MOBERG, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a specification.

My invention relates to improvements in grinding mills and the objects of my improvements are simplicity and economy in construction and convenience and efficiency in use.

In the accompanying drawing:—Figure 1 is a longitudinal section of part of a grinding mill embodying my invention, certain parts being in side elevation. Fig. 2 is a back view of the moving grinding disk. Fig. 3 is a similar view of the hub which supports the moving grinding disk, the position of the moving disk being indicated by broken lines. Fig. 4 is a front view of the hub. Fig. 5 is an enlarged view of certain of the parts shown in Fig. 1.

A is the lower body and base of a grinding mill and comprises the lower half 10 of an operating chamber in which are housed the grinding disks, comprising a stationary disk B and moving disk C and is provided with means for supporting the bearings D for the shaft E which carries the said moving disk C, which bearings may be a ball bearing as shown. The said shaft extends through the stationary disk B and a partial hopper 11 on one side of the same and overhangs the bearing D on the same side as the said hopper 11 and supports on the outside a combined crank and fly wheel F, and is operatively connected to the same through the medium of an adjusting screw G, all in a manner well known. The said stationary disk B is of well known construction and comprises on the back face the grinding face or disk proper 12 having the usual ribs and teeth, and on the front face said partial hopper 11, the said disk and hopper being pierced to admit the shaft E as described. The shaft hole 14 in the hopper is of a size to allow clearance for the shaft and the hole or passageway 15 through the stationary disk B admits the material to be ground. On the outer edges the stationary disk B is provided with lugs for holding the same in place in engagement with corresponding lugs on the body A. The moving disk C comprises on the front face an annular disk 17 provided with the usual ribs and teeth, and constituting the grinding face, opposed to the said stationary grinding face 12. A central opening 18 corresponding to the central passageway 15 in the stationary disk B admits unground material. On the back means are provided for a rocking or flexible operating connection with the shaft E, all of which will be described. The said moving disk C has a generally flat, plane back surface and is provided around the inner periphery at the edge of the said central opening 18 with a circular bearing rib 19 and between said rib and the outer edge with driving lugs 20 shown as three in number, spread about 120 degrees apart and integral, and adapted to engage with corresponding driving slots 21 on a hub H, to be described. The said hub H fits the shaft E and is rigidly secured to the same in an ordinary manner, as by a set screw I at the back end, and at the front end has a circular bearing rib 22 corresponding to the said bearing rib 19 on the said moving disk C and adapted to engage in abutment therewith. Internally of the said bearing rib 22 the front end of the hub H is recessed or concaved as shown at 23 forming a chamber for receiving and storing unground material, and radially exterior to the said rib 22 the said hub H flares outwardly forming an annular web 24 provided with radial openings constituting the said driving slots 21 fitting the said driving lugs 20 on the moving disk C as described. Generally there is clearance between the said web 24 and the back face of the said moving disk C remote from the abutting bearing ribs 19 and 22, permitting of a limited rocking motion of the moving disk C relative to the hub H during normal conditions of operation. Accordingly, the said moving disk C is generally held in normal operative position by the said ribs 19 and 22, and is positively driven by the said lugs 20 in coöperation with the said driving slots 21 and as described is adapted to shift its position relatively to the stationary disk B so as to assume a position parallel to the same. In other words, the said moving disk is adapted to assume a position of parallelism or a position suitable for efficient grinding under all conditions, including a condition in which the plane of the stationary disk may

deviate appreciably from a 90 degree position relatively to the axis of the driving shaft E.

I claim as my invention:—

1. In a grinding mill having a moving disk, a hub, and a shaft, the said hub having means for being rigidly secured to said shaft, and provided with a bearing rib concentric with the said shaft, radially exterior to the said rib having an annular web provided with radial slots, the said disk provided with a bearing surface adapted to engage in abutment with the said rib and with lugs adapted to engage with and be driven by the walls of the said slots.

2. In a grinding mill having a shaft and a grinding disk, a hub provided with means for being rigidly mounted on said shaft and in abutment with the said grinding disk, the confronting faces of the said hub and disk provided with circular bearing ribs in abutment with one another and projecting generally beyond said confronting faces, the said hub and disk provided with engaging lugs and slots constituting a driving connection between said hub and disk.

3. In a grinding mill having a moving disk, a hub and a shaft, the said hub rigidly secured to said shaft, provided with a bearing rib concentric with said shaft and having extending radially exterior to said hub an annular web provided with means for engagement with said disk, and the said disk provided with a circular rib in abutment with said rib on said hub, the said hub inwardly from said rib provided with a recess extending away from said disk adapted as a receiving chamber for unground material.

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Witnesses:
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