

No. 879,807.

PATENTED FEB. 18, 1908.

H. BESSER.
ANTIFRICTION GRINDING ROLLER.

APPLICATION FILED MAR. 21, 1907.

Fig. 1

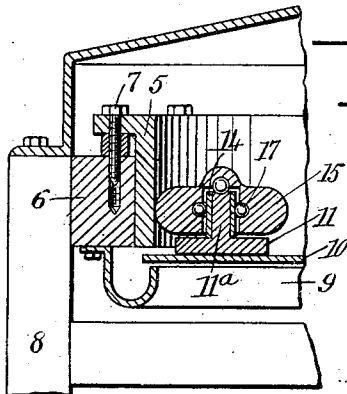
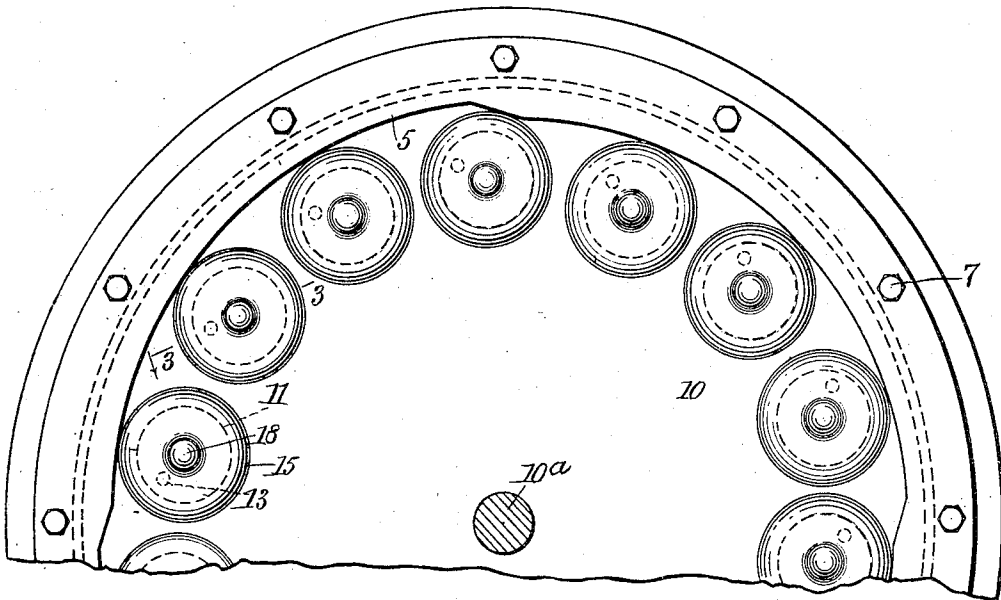


Fig. 2

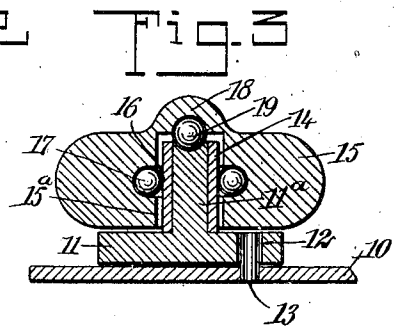


Fig. 3

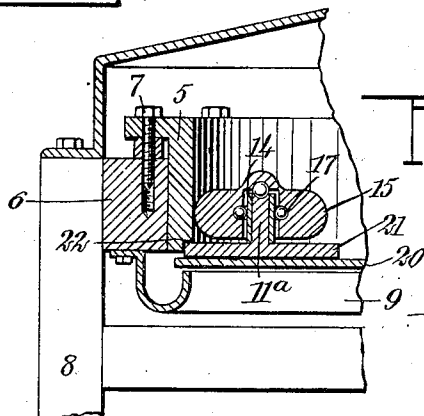


Fig. 4

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ANTIFRICTION GRINDING-ROLLER.

No. 879,807.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed March 21, 1907. Serial No. 363,670.

To all whom it may concern:

Be it known that I, HERMAN BESSER, a citizen of the United States, and a resident of Alpena, in the county of Alpena and State of Michigan, have invented a new and Improved Antifriiction Grinding-Roller, of which the following is a full, clear, and exact description.

My invention relates to rollers used in mills and analogous grinding devices, my more particular object being to so mount the roller as to give it a maximum efficiency coupled with a minimum of friction.

Reference is to be had to the drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a fragmentary plan of a mill used for grinding, and provided with a number of my antifriiction rollers severally swung upon pivots; Fig. 2 is a central section through Fig. 1, of the roller and its accompanying parts, and shows how the roller fits against the wearing plate; Fig. 3 is an enlarged vertical section upon the line 3—3 of Fig. 1, looking in the direction of the arrow, and showing the construction of the roller and of the pivotally mounted base for supporting it; and Fig. 4 is a section somewhat similar to Fig. 2 but showing a modified form of supporting-base, the latter being entirely loose so as to increase the freedom of movement of the roller and its accompanying parts.

An annular wearing-plate 5 is mounted upon an annular supporting-plate 6 and is connected thereto by aid of screws 7. The framework is shown at 8, and at 9 is an annular trough for catching the ground material. A revoluble table 10 is connected rigidly with a center post 10^a whereby it is rotated. A number of separate bases 11, of disk form, are spaced equidistant and rest upon the table 10. Each base 11 is provided with a hole 12 disposed eccentrically in relation to the center thereof and free to swing upon a stationary pin 13 mounted in the table 10 and projecting upwardly therefrom (see Fig. 3). Each disk 11 is provided with a boss 11^a disposed centrally thereof and projecting upwardly therefrom, the upper end of this boss being concave. Encircling the boss 11^a and having substantially the same length thereof is a sleeve 14. Rollers are shown at 15, each of these rollers

being provided internally with an aperture 15^a of substantially cylindrical form, and is further provided with an annular groove 16 containing balls 17, the latter engaging the sleeve 14. Each roller 15 is further provided with a recessed portion 18 which fits upon a ball 19, the latter resting upon the concave upper end of the boss 11^a.

As will be seen from Figs. 1, 2 and 3, the disk 11 is free to swing upon the pin 13 as a pivot, and hence each roller 15 is free to swing bodily within certain limits relatively to the center of the machine. Each roller 15 is also free to turn upon the sleeve 14, the balls 17, 19 serving as an antifriiction bearing. The sleeve 14, being loose upon the boss 11^a, not only tends to still further decrease the friction, but is replaceable and interchangeable.

The table 10 being turned and the grinding material being fed into the wearing-plate 5, the rollers 15 grind or pulverize this material, as will be readily understood. The swinging of the bases 11 enables the rollers 15 to partake of swinging motions corresponding to any irregular or arbitrary conformity of the interior of the wearing-plate 5.

In the form shown in Fig. 4 the base 21 is of greater diameter than the roller 15 and rests loosely upon a revoluble table 20. In this figure the wearing-plate 5 is provided, adjacent to its lower edge, with an annular groove 22 into which one edge of the base 21 fits, so as to allow the roller 15 to engage the inner surface of the annular wearing-plate 5. In this form, when the table 20 is turned, the roller 15 and its base 21 are thrown bodily outward by centrifugal force, and roll around engaging the internal surface of the wearing-plate 5, so as to grind the material. The base 21, not being secured at all to the table 20, can not occupy any given position for any great length of time, and in fact its general bodily travel around the center of the machine is a little slower than that of the outer surface of the table 20.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

The combination of a wearing plate having a grinding surface, a roller provided with a surface for engaging said grinding surface of said wearing plate, a base having the general form of a disk and provided with a stem pro-

jecting centrally upward from said disk for
supporting said roller, said base being further
provided with an aperture, a revoluble table
for supporting said base, and a pivot secured
5 rigidly to said revoluble table and extending
through said aperture in said base for the pur-
pose of allowing said base to swing.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

HERMAN BESSER.

Witnesses:

F. W. PIEPKORN,
HATTIE BEAL.