No. 785,206. PATENTED MAR. 21, 1905.

W. A. FARRAR.

QUICK RELEASE MECHANISM FOR GRINDING MILLS.

APPLICATION FILED MAR. 30, 1903.

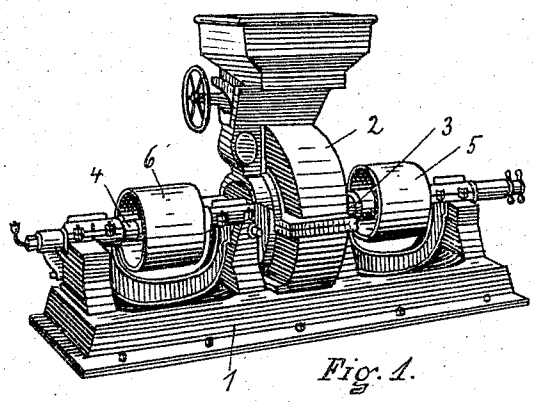


Fig. 1.

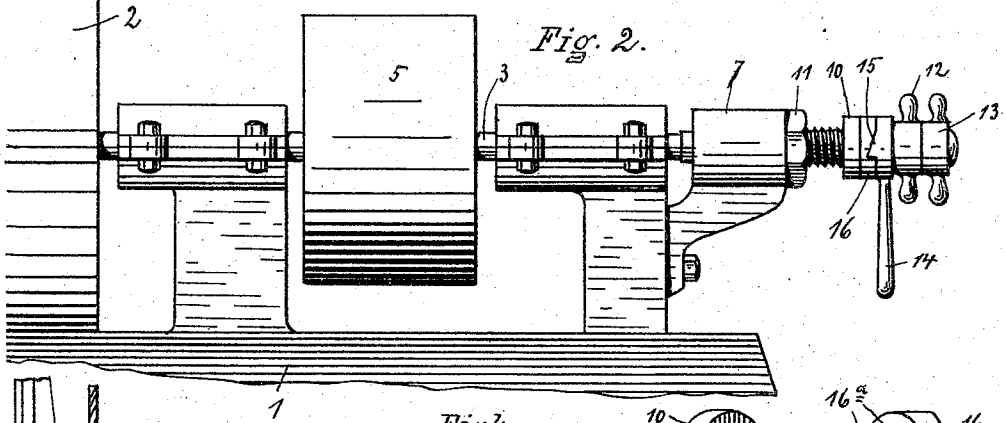


Fig. 2.

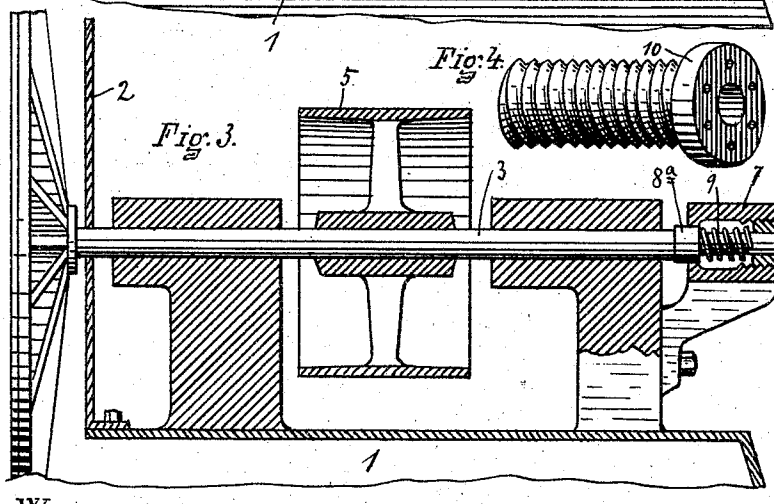


Fig. 3.

Fig. 4.

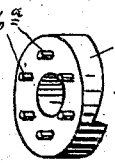


Fig. 5.

WITNESSES.

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No. 785,206. Patented March 21, 1905.

UNITED STATES PATENT OFFICE.

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QUICK-RELEASE MECHANISM FOR GRINDING-MILLS.

SPECIFICATION forming part of Letters Patent No. 785,206, dated March 21, 1905.

Application filed March 30, 1903. Serial No. 150,117.

To all whom it may concern:

Be it known that I, WILLIAM A. FARRAR, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Quick-Release Mechanism for Grinding-Mills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

The object of my invention is to provide a quick-release for grinding-mills adapted to instantly allow the grinding-surfaces to separate in case foreign substances get between the disks or for other sufficient reasons.

In the drawings, Figure 1 shows a perspective view of a grinding-mill embodying the features of my invention. Fig. 2 shows, on an enlarged scale, portions of the construction in side elevation. Fig. 3 shows on the same scale details of the construction in section. Figs. 4 and 5 show details of construction.

Referring to the reference-figures in a more particular description, 1 indicates the base of the mill, which is provided with a casing 2, containing two grinding-disks mounted, respectively, on the shafts 3 and 4 and driven in opposite directions by belts applied to the band-pulleys 5 and 6, respectively.

I have only shown the quick-release device applied to one end of the machine, as this is usually sufficient for all practical purposes. In this instance at the end of the shaft 3 there is provided the thrust-bearing 7, rigidly mounted on an arm from the frame. This bearing supports the thrust bar or shaft 8, which is provided on the end engaging the shaft 3 with a head 8^a. Immediately behind the head 8^a there is provided in a chamber in the bearing 7 the spring 9, interposed between the head 8^a and the end of the screw-threaded bushing 10. This bushing is somewhat elongated to provide a range of adjustment and engages with internal screw-threads in the spring-chamber.

11 indicates the lock-nut for locking the bushing 30 in its adjusted position with reference to the thrust-bearing 7. The thrust-shaft 8 passes through the bushing 10 and at its outer end is screw-threaded and provided with adjusting-nuts 12 and 13. Between the adjusting-nuts 12 and 13 and the end of the bushing 10 there is interposed the quick-release lever 14, which includes a washer-like plate 14^a, having two or more inclined teeth 15 on one side, and a washer-like plate 16, having corresponding depressions to register with the teeth 15. The plate 16 is preferably provided on the side which engages the bushing 10 with a series of pins or projections 16^a, adapted to engage with corresponding openings in the end of the bushing 10, so that when the parts are released the handle 14 of the quick-release device can be adjusted to any desired position, either depending, projecting upward, or horizontal.

It will be observed that when the parts are in the position shown in Figs. 2 and 3 the spring 9 will move the thrust-shaft 8, and with it the disk-shaft 3, toward its opposing disk and in position to grind. In case the disks need to be separated the operator can swing the handle 14 of the quick-release from the position in which it is shown to one substantially at right angles to it, which will cause the teeth 15 to ride out of recesses which receive them and withdraw the thrust-shaft 8 against the tension of the spring 9. When so withdrawn, the parts will retain their said position until the quick-release lever-handle is returned to the operative position shown in the drawings.

It is evident that the quick-release mechanism herein shown and described is not necessarily applied to a double grinding-mill of the construction shown in the drawings, but may be applied to what is known as a "single" mill having simply one movable grinding-disk, and perhaps to other constructions.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a grinding-mill of a frame, a rotary shaft and grinding-disk mounted thereon, a thrust-bearing box on the frame at the end of the grinding-disk, a bushing

screw-threaded into the thrust-bearing, the thrust-shaft mounted in the thrust-bearing bushing, and engaging the end of the grinding-disk shaft, and having a head thereon, a spring confined between the head on the thrust-shaft and the end of the bushing, a manually-operatable plate or ring axially mounted with reference to the thrust-shaft and having cam faces or projections engaging the end of the bushing, and means for adjustably locating the position of said thrust plate or ring with reference to the thrust-shaft, substantially as set forth.

2. The combination in a grinding-mill of a frame, a rotary shaft and grinding disk mounted thereon, a thrust-bearing box on the frame at the end of the grinding-disk, a bushing adjustably mounted in the thrust-bearing shaft, a thrust-shaft mounted in the thrust-bearing bushing, and engaging the end of the grinding-disk shaft, and having a head and shank, a spring confined between the head on the thrust-shaft and the end of the bushing, a manually-operatable plate or ring mounted on the thrust-shaft and having cam faces or projections engaging the end of the bushing, and means for adjustably locating the position of said thrust plate or ring on the thrust-shaft, substantially as set forth.

3. The combination with a grinding-mill having a frame, grinding-shaft and disk of a quick-release mechanism consisting of a thrust-box on the frame, a bushing for the thrust-box threaded therein, a thrust-shaft arranged to engage the end of the grinding-disk shaft, having a head or shoulder thereon, a manually-operatable rocking plate or ring mounted on the thrust-shaft, having cam faces or projections, a ring or plate having coöperating cam faces or projections and means for securing same in sundry positions of adjustment on the end of the bushing, and means for adjusting the location of the manually-operatable plate or ring on the thrush-shaft, substantially as set forth.

In witness whereof I have affixed my signature, in presence of two witnesses, this 23d day of March, 1903.

WILLIAM A. FARRAR.

Witnesses:
S. E. JONES,
S. A. BROWN.