

No. 764,542.

PATENTED JULY 12, 1904.

E. P. ALSTED.

PORTABLE APPARATUS FOR SHARPENING THE GRINDING DISKS OF  
ATTRITION MILLS.

APPLICATION FILED OCT. 21, 1903.

NO MODEL.

Fig. 1.

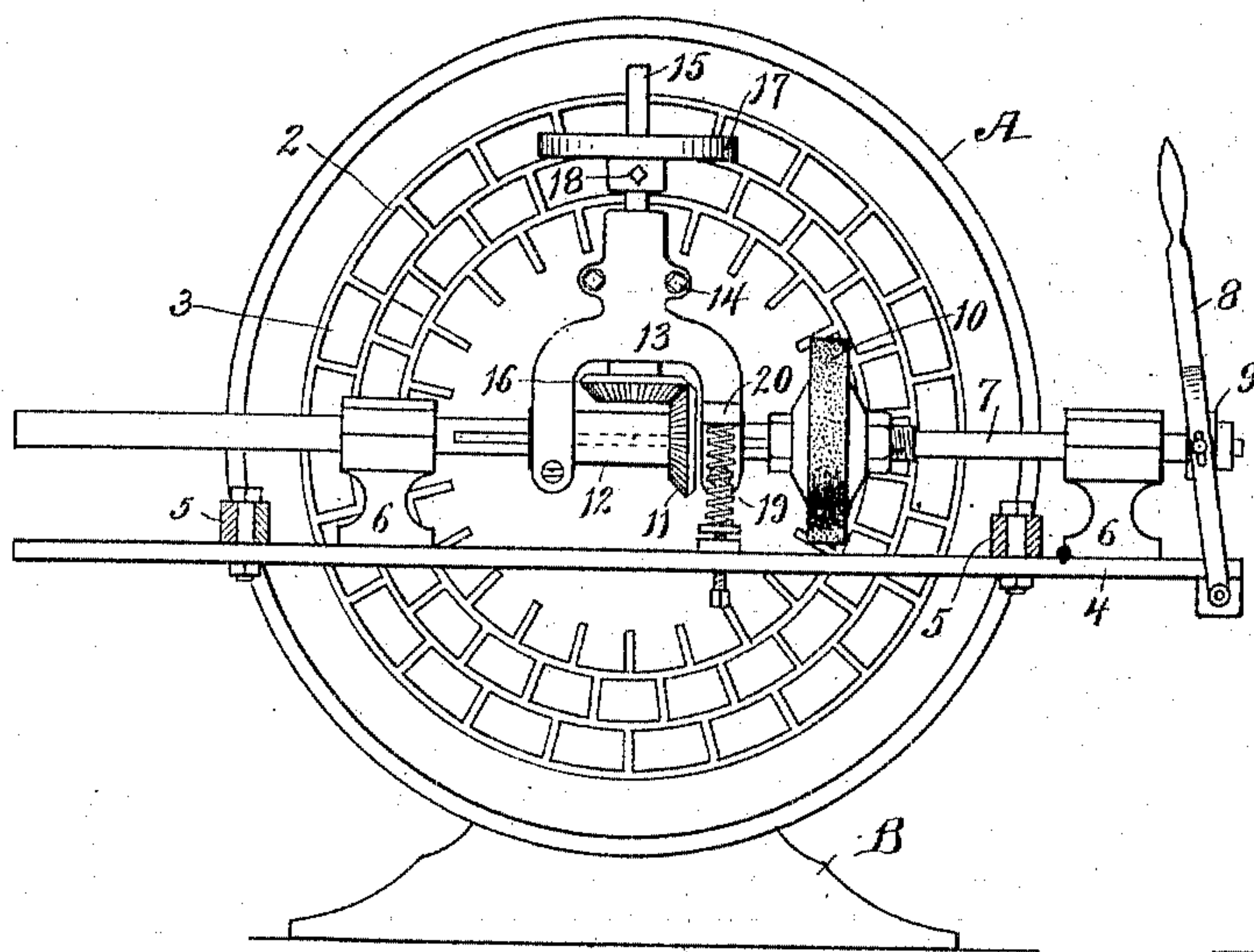


Fig. 2.

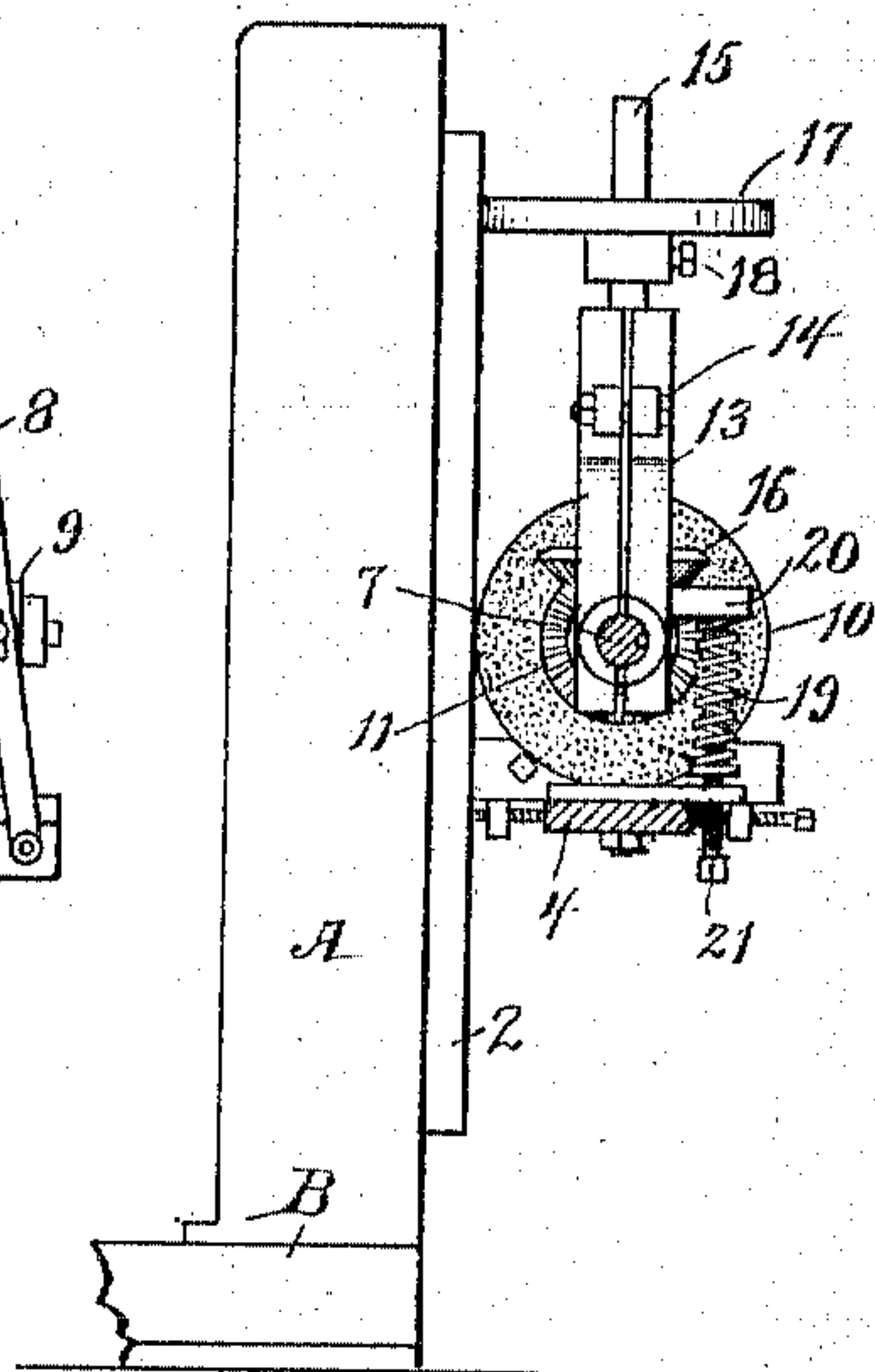


Fig. 3.

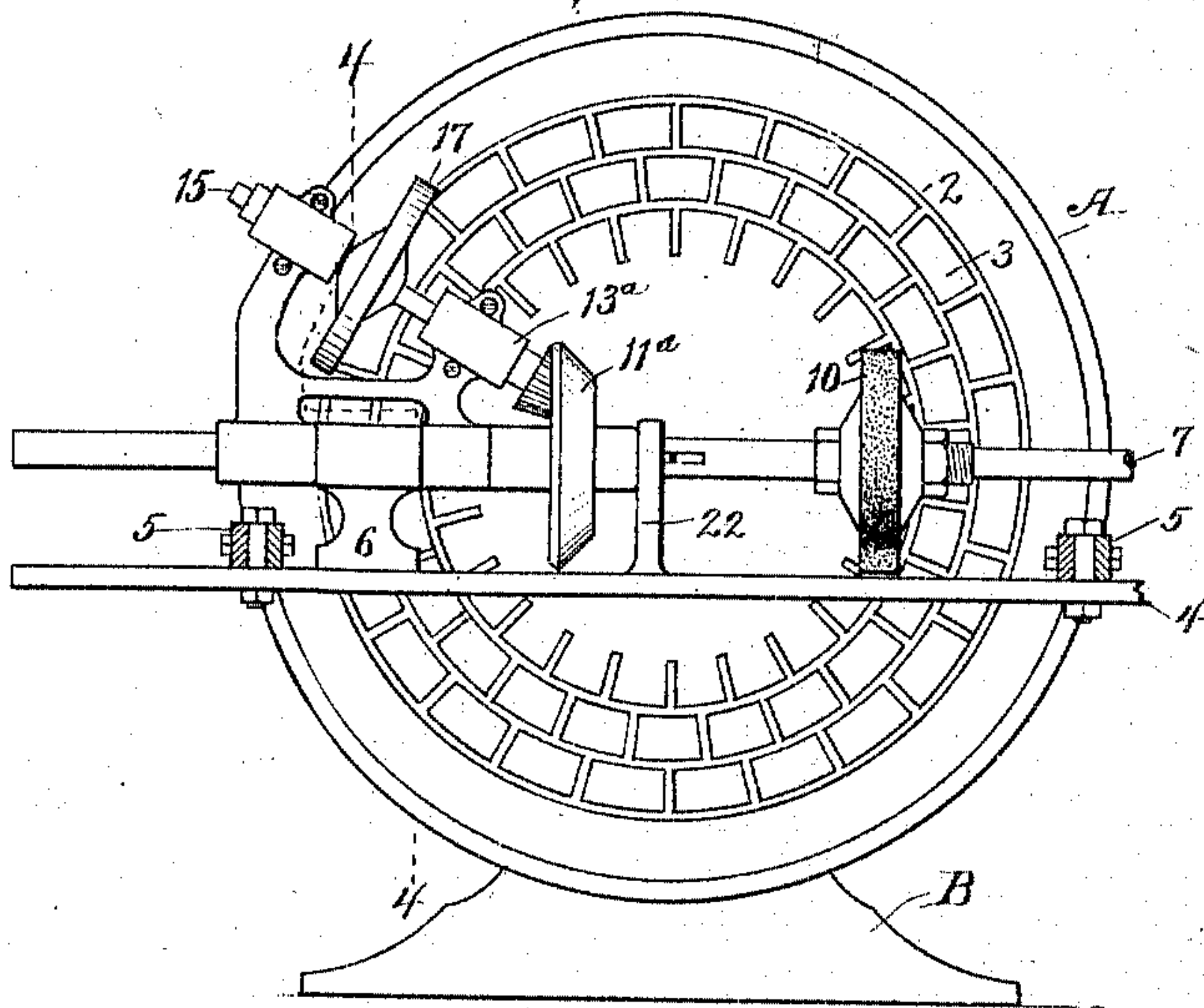
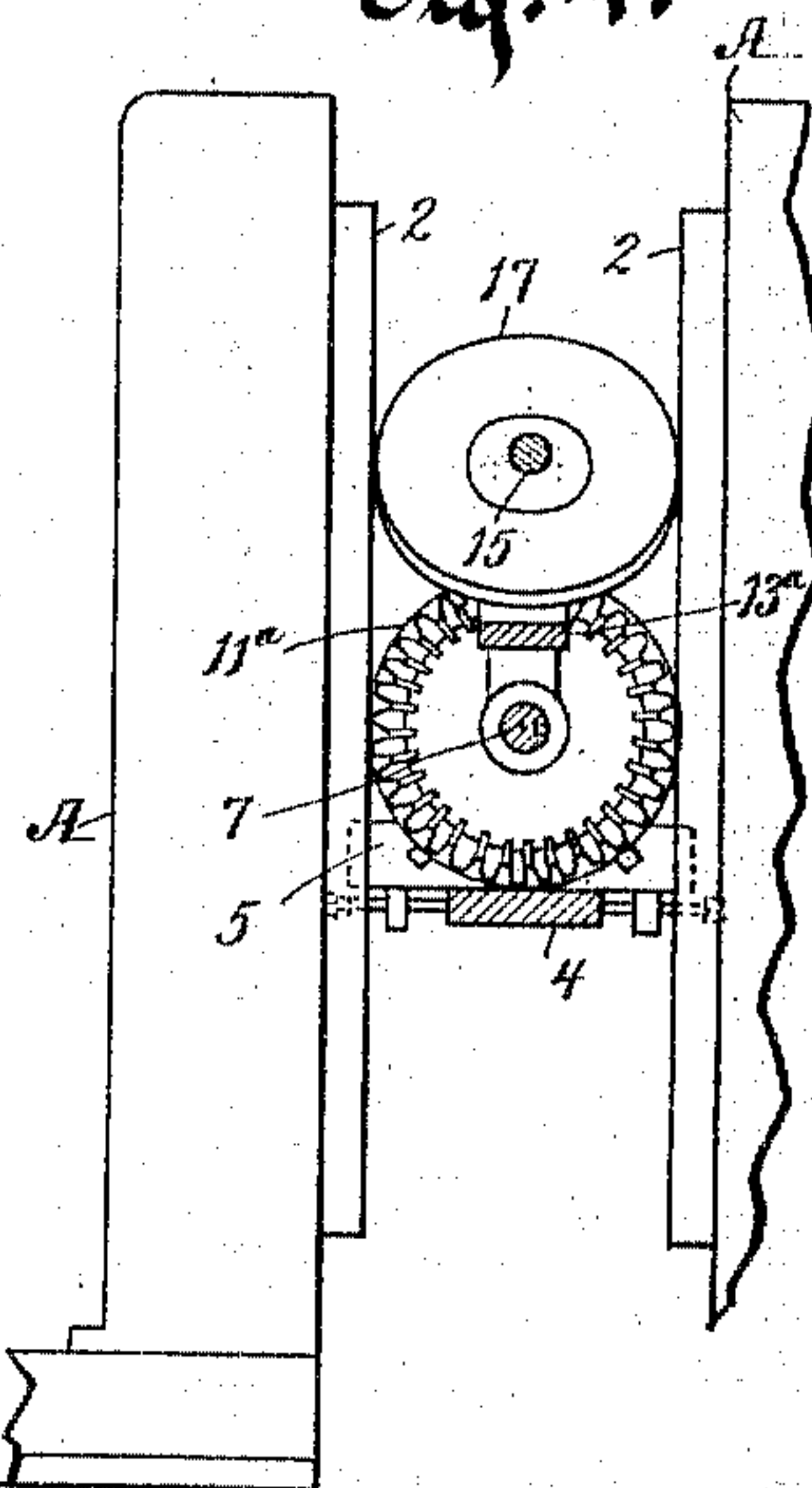


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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PORTABLE APPARATUS FOR SHARPENING THE GRINDING-DISKS OF ATTRITION-MILLS.

SPECIFICATION forming part of Letters Patent No. 764,542, dated July 12, 1904.

Application filed October 21, 1903. Serial No. 177,884. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD P. ALSTED, residing in Truesdell, in the county of Kenosha and State of Wisconsin, have invented a new and useful Improvement in Portable Apparatus for Sharpening the Grinding-Disks of Attrition-Mills, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The object of the present invention is to provide improved means for rotating the shaft carrying the abrading-wheel in a portable apparatus for sharpening the grinding-disks of an attrition-mill. The specific character of the novel means for driving this shaft are shown in the drawings and are hereinafter more fully described.

The invention consists of the mechanism, its parts and combinations of parts, as herein described and claimed, or the equivalents thereof.

In the drawings, Figure 1 shows an elevation of the face of a grinding-disk for an attrition-mill with a half-case inclosing it at the sides and rear and my portable apparatus for sharpening the disks, including the improved mechanism for driving the abrading-wheel. Fig. 2 is an elevation of the construction shown in Fig. 1. Fig. 3 shows an elevation of a grinding-disk and its half-case and my apparatus for sharpening the grinding-disk, including the mechanism for driving the abrading-wheel, in a slightly-different form from that shown in Fig. 1. Fig. 4 is an elevation of the construction shown in Fig. 3.

In the drawings, A is the half-case, mounted on a frame or suitable support B and inclosing the sides and rear of a rotatable grinding-disk 2. The grinding-disk is provided on its face with projecting ridges or knives 3, that have their outer faces in a common radial plane that cuts the axis of the disk at right angles. The form and arrangement of these knives are immaterial, except that their cutting edges are in the same plane.

The portable apparatus for sharpening the grinding-disk includes a means for attaching it temporarily to a fixed support in proper relation to the grinding-disk, and this may

consist of a base-bar 4, provided with clamping devices 5, adapted to secure the base-bar to the rim of the half-case A, standards 6, fixed on the base-bar, in which a shaft 7 is mounted revolubly and shiftable endwise, and a lever-handle 8, provided for shifting the shaft endwise. The lever-handle 8 is pivoted on the bar 4 and straddles the shaft 7 and is connected thereto by a block 9, trunnioned in the lever-handle and riding in an annular groove therefor in the shaft. The shaft 7 is provided with an abrading-wheel 10, tight thereon, the abrading-wheel being adapted to sharpen the teeth on the disk 2 by grinding them off.

For rotating the shaft 7 the shaft is provided with a beveled gear-wheel 11, having a hub 12, the wheel and its hub being splined on the shaft 6. An ancillary frame 13, conveniently having split legs, is hinged on the shaft 7, the two parts of the frame being held to the shaft by bolts 14, the legs of the frame straddling the gear-wheel 11 and its hub 12, whereby the wheel and the frame are held in constant relation to each other shiftable on the shaft. A driving-shaft 15, mounted in the frame 13 at a right angle to the shaft 7, is provided with a gear-wheel 16, meshing with the gear-wheel 11, and a friction-wheel 17 on the driving-shaft 15 and secured thereto adjustably by a set-screw 18 is adapted to bear peripherally against the face of a grinding-disk 2, whereby as the grinding-disk is rotated the shaft 15 is driven, communicating its motion to the shaft 7 and the abrading-wheel 10. A spring 19, bearing against an arm 20 on the frame 13 and resisting against a collar on the end of a bolt 21, turning through the base-bar 4, whereby the tension of the spring may be regulated, is adapted to hold the friction-wheel 17 against the face of the grinding-disk 2 yieldingly.

In the construction shown in Figs. 3 and 4 the ancillary frame 13<sup>a</sup>, in which the shaft 15 is mounted, is so formed as to carry the shaft 15 therein at an oblique angle to the shaft 7, and the shaft 13<sup>a</sup> is hinged on and about the shaft 7 on two sides of a standard 6. The gear-wheel 11<sup>a</sup> is provided with interior beveled teeth and gears with a correspondingly-



beveled pinion on the shaft 15. The wheel 11<sup>a</sup> is held in place on one side by the ancillary frame 13<sup>a</sup> and on the other side by a post 22, fixed on the base 4. The construction shown in Figs. 3 and 4 is otherwise substantially the same as the construction shown in Figs. 1 and 2, and the function and operation of the mechanism are the same as the mechanism of Figs. 1 and 2.

10 What I claim as my invention is—

1. In apparatus for sharpening the grinding-disk of an attrition-mill, an attachable supporting means, an abrading-wheel mounted revolutely and shiftable endwise on said supporting means, a gear-wheel concentric with 15 said abrading-wheel and independent of the movement endwise of said abrading-wheel, an ancillary frame hinged and thereby supported concentrically with the abrading-wheel and in constant relation to said gear-wheel, a driving-shaft mounted in said ancillary frame at 20 an angle to the axis of the abrading-wheel and adapted to be swung in said angle about the line of the axis of the abrading-wheel, and a friction-wheel on said driving-shaft always 25 disposed in a plane at an angle to the plane of said abrading-wheel and adapted to contact with the grinding-disk of the mill and to be driven therefrom.

30 2. In apparatus for sharpening the grinding-disk of an attrition-mill, an abrading-wheel and its shaft having suitable supporting means, a gear-wheel splined on said shaft,

an ancillary frame hinged on the shaft in constant relation to said gear-wheel, a driving-shaft mounted in said ancillary frame at an angle to said abrading-wheel shaft and geared to said wheel splined on said abrading-wheel shaft, a friction-wheel on said driving-shaft, and a spring bearing against said ancillary frame adapted to hold the friction-wheel yieldingly to its work.

3. In combination, a base-bar having means to secure it detachably to the case of an attrition-mill, a shaft with an abrading-wheel tight thereon mounted revolutely and shiftable, endwise on the base-bar, adjacent to and parallel with the plane of the grinding-disk the abrading-disk being adapted to contact with the face of the grinding-disk, an ancillary frame hinged oscillatingly on said shaft, a driving-shaft mounted in said ancillary frame at an angle and geared to said first-mentioned shaft, a friction-wheel on said driving-shaft adapted to bear against the face of the grinding-disk and to drive the abrading-wheel therefrom, and a spring acting against said ancillary frame adapted to hold the friction-wheel yieldingly to its work.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD P. ALSTED.

Witnesses:

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