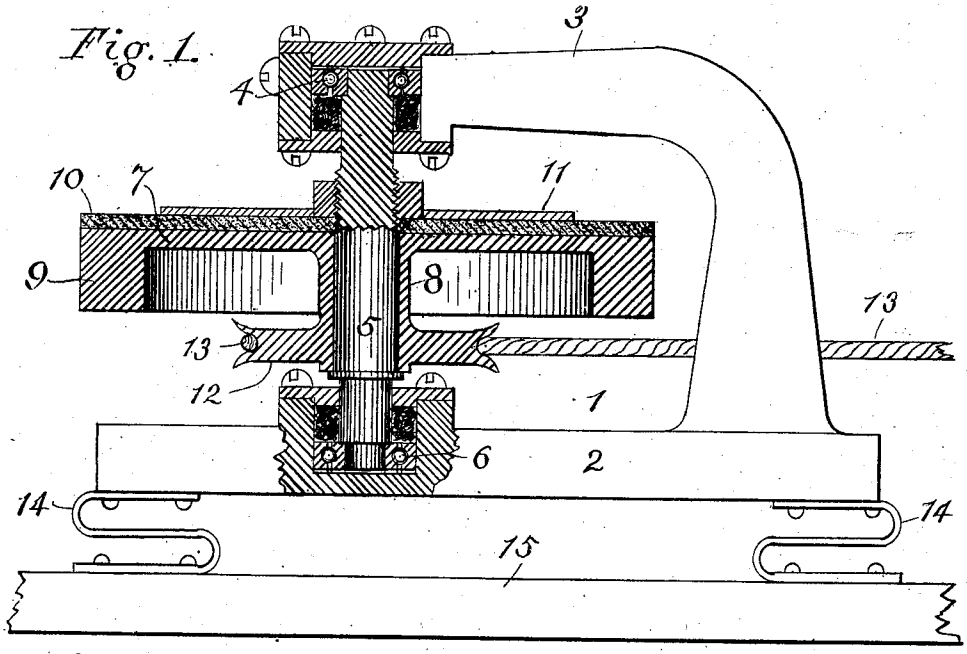
C. K. BERG & K. F. BAUMANN.

GRINDING MACHINE.

APPLICATION FILED OCT. 3, 1910.

992,702. **Patented May 16, 1911.**

Fig. 1.



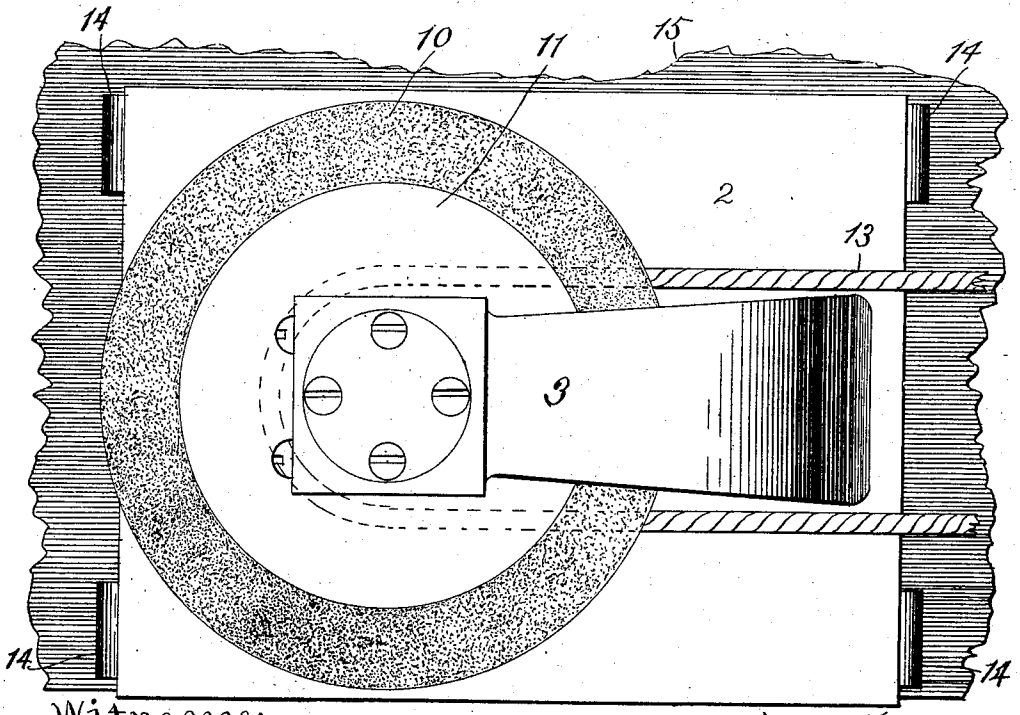


Fig 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

CARL K. BERG AND KARL F. BAUMANN, OF CHICAGO, ILLINOIS; SAID BERG ASSIGNOR TO PHILIP W. IMHOF, OF CHICAGO, ILLINOIS.

GRINDING-MACHINE.

992,702. Specification of Letters Patent. **Patented May 16, 1911.**

Application filed October 3, 1910. Serial No. 585,064.

To all whom it may concern:

Be it known that we, CARL K. BERG and KARL F. BAUMANN, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grinding-Machines, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding numerals of reference in the different figures indicate like parts.

Our invention relates to disk grinding machines for grinding small articles, such for example, as cutlery and especially thin razor blades of the "safety" type in which great accuracy and delicacy is required.

It has been customary heretofore, so far as we are aware, to mount the disk of this type of machine in rigid bearings, depending upon the relative accuracy of construction to insure satisfactory results in operation. We have found in practice, however, that grinding disks so mounted are in most instances, sufficiently unbalanced to injuriously affect the work done thereon. In most cases the grinding is not uniform. This is caused by the wabbling of the disk which, however slight it may be, is objectionable in two ways. It not only causes the portions at or near the ends to be ground thinner than the intermediate parts, but it is liable to cause the blade to be nicked or grooved at the instant of contact between it and the disk so as to render the former worthless.

The object of our invention is to overcome this objection and to provide a disk grinding machine which shall be automatically balanced as a result of its rotation and the manner of its mounting, all of which is hereinafter more particularly described and definitely pointed out in the claims.

In the drawings, Figure 1, is a side view of a grinding machine embodying the features of our invention, the bearings, shaft and disk being shown in section, and Fig. 2 is a plan view thereof.

Referring to the drawings, 1 represents generally the frame of the machine which consists of a base 2 upon which is cast or otherwise formed a bent arm 3, to the forward end of which is separably secured a ball bearing 4 for the reception of the upper end of a shaft 5, the lower end of which is mounted in like manner in a ball bearing 6, which is separably connected with the base 2. A metal disk 7 having a hub 8, is rigidly mounted upon the shaft 5, said disk being provided with a heavy depending rim 9 to serve as a balance-wheel for the purpose hereinafter stated.

Rigidly attached to the disk 7 is a grinding disk 10 of suitable abrading material upon the upper face of which in turn, is secured a leather strapping disk 11 of smaller diameter.

Upon the hub 8 is formed a grooved pulley 12, which is adapted to be driven by means of a belt 13 connected with a source of power not shown.

The base 2 is mounted upon springs 14 preferably located at or near the respective corners thereof which, in turn are supported upon a table 15 or other rigid support. The disk 7, being provided with the heavy rim 9, which serves as a balance-wheel, has a gyrostatic action when rapidly rotated, which tends at all times to maintain it in the same plane of rotation. Inasmuch, however, as rigid bearings would have the effect to counteract this tendency, we have interposed the springs 14 between the frame and its primary support and as a result, have found in practice, that the plane of rotation remains unvaried and that the tendency to maintain its status is sufficient to resist the slight pressure required for this class of grinding, and inasmuch as the plane of rotation is constant, the danger of nicking or grooving the thin plate at the instant of its contact with the stone, is entirely obviated and the work produced is smooth, even and uniform. Moreover, in view of its tendency toward accuracy, the time required for a given operation is materially shortened.

Inasmuch as the manner of cushioning the frame may be varied by using different forms of springs or providing for the yielding of the bearings in other ways, we do not wish to be confined to the specific construction shown as it may be varied without departing from the principle involved.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. A grinding machine of the class described, comprising a rotatable disk, having a weighted periphery, the axis of said disk

being mounted upon a frame having a resilient support to permit a gyrostatic action of the disk when rotated.

2. A grinding machine in which is combined a rotatable disk having a relatively heavy periphery, a shaft for supporting said disk mounted in a frame, means for rotating said shaft and means for yieldingly supporting said frame upon a rigid base.

In testimony whereof, we have signed this specification in the presence of two subscribing witnesses, this 30th day of September 1910.

CARL K. BERG.
KARL F. BAUMANN.

Witnesses:
D. H. FLETCHER,
JENNIE L. FISKE.