

1,048,769.

J. E. VOGT.
GRINDING MACHINE.
APPLICATION FILED APR. 24, 1912.

Patented Dec. 31, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

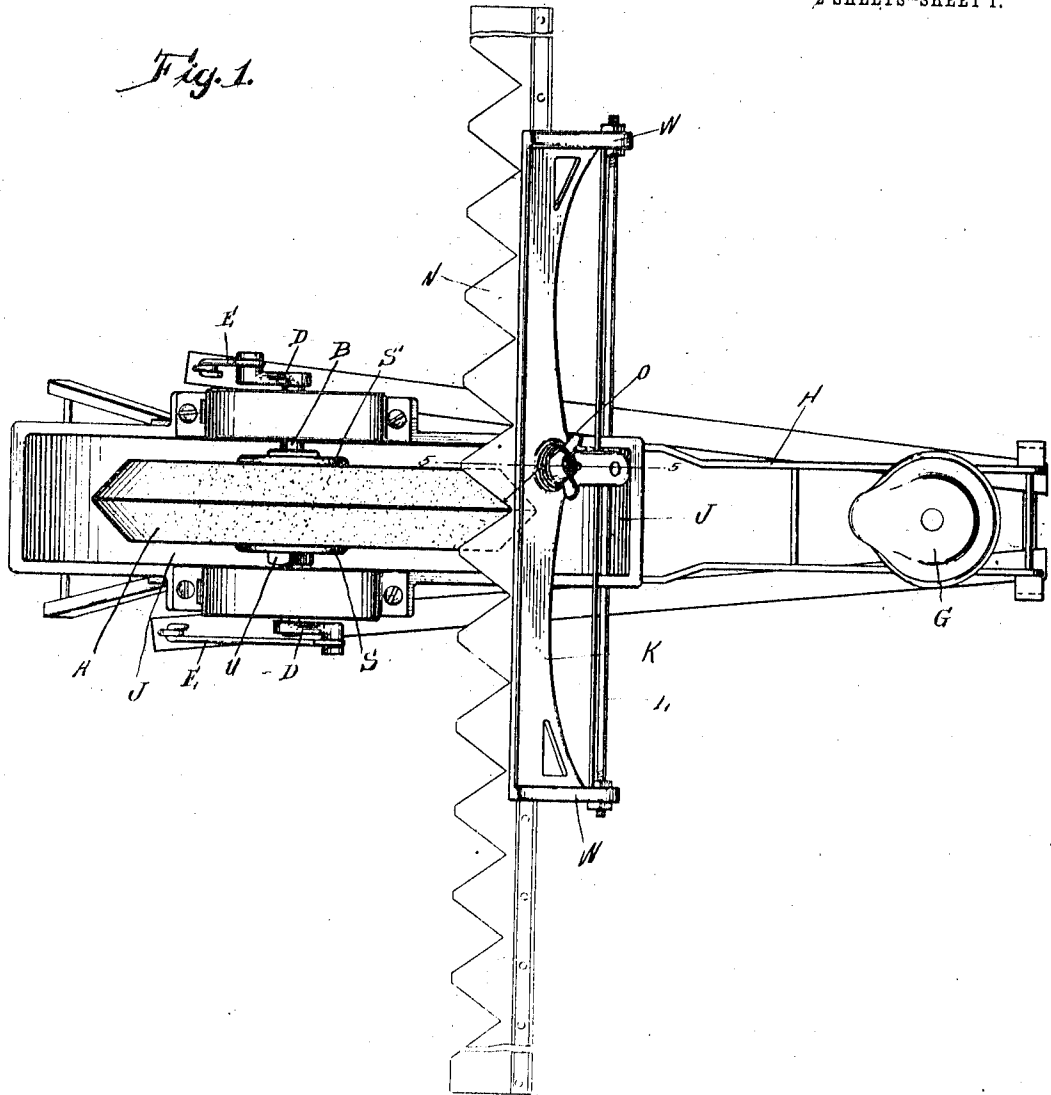
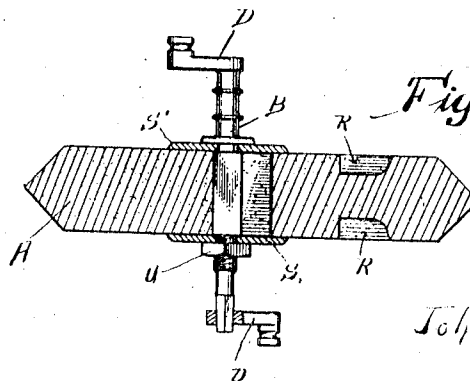


Fig. 2.



Witnesses:
Arthur Oberly
Elsie Rohloff

Inventor:
John E. Vogt
By Albert Schick
Attorney.

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2 SHEETS-SHEET 2.

Fig. 3.

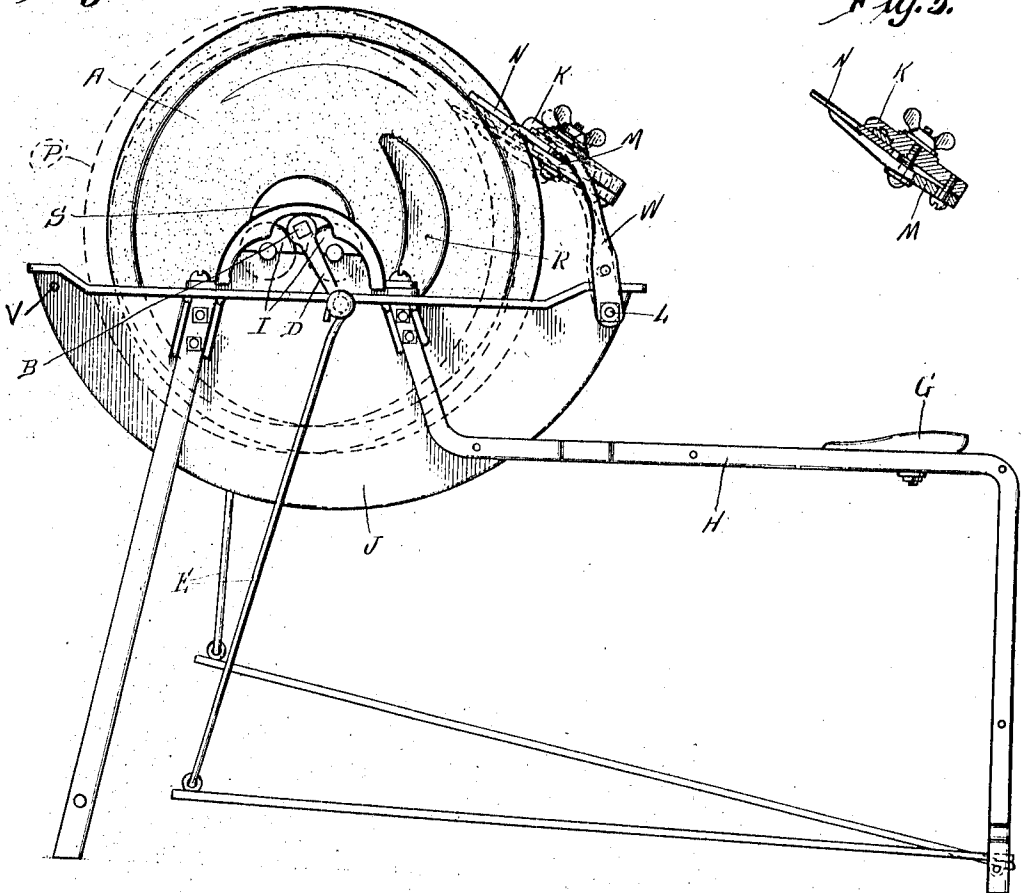


Fig. 5.

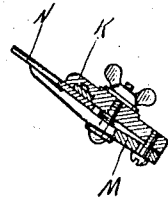
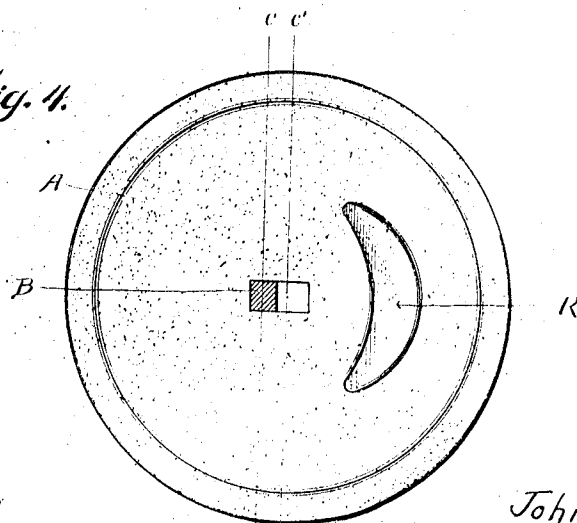


Fig. 4.



Witnesses:
Arthur Theeler.
Elsie Rohloff

Inventor:
John E. Vogt
By Albert Scheidt
Attorney.

UNITED STATES PATENT OFFICE.

JOHN E. VOGT, OF CHICAGO, ILLINOIS.

GRINDING-MACHINE.

1,048,769.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed April 24, 1912. Serial No. 692,970.

all whom it may concern:

Be it known that I, JOHN E. VOGT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Grinding-Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this application.

My invention relates to the class of grinding machines used for sharpening the blades of the sickle bars of mowing and harvesting machinery.

It consists essentially of a novel construction whereby the grinding wheel is mounted eccentrically upon its shaft, while the blade is held in a movable holder; whereby the holder, in following the contour of the wheel, presents different portions of the blade to the wheel.

In its preferred form, my invention is shown in the accompanying drawings, in which—

Figure 1 is a plan view of a grinding machine equipped with my invention. Fig. 2 is a horizontal section through the shaft and the grinding wheel. Fig. 3 is a side elevation of the grinding machine. Fig. 4 is a side elevation of the grinding wheel. Fig. 5 is a section through the holder along line 5—5.

In the drawings, A is a grinding wheel or stone, which wheel is mounted on a shaft B having a central square portion passing through a perforation in the wheel. This perforation is elongated into a rectangular section so that the wheel may be slid until its center line C' is at some distance from the center line C of the shaft.

D D are cranks fastened to opposite ends of the shaft B.

E E are pitmen connecting the cranks D with pedals, which pedals are operated by a man sitting on a seat G supported by the framework H of the machine. To reduce friction, each end of the shaft preferably rests upon rollers I I journaled in bars supported by the framework H. This framework also supports a trough J partly filled with water, so as to keep the grinding wheel moist.

K is a holder pivoted to one end of the trough J by a horizontal shaft L, this holder having a clamp M for gripping the blade

N which is to be ground. The shaft L of the holder is preferably made considerably longer than the width of the trough, so that the blade can be moved in a direction transverse to the trough, thereby allowing a considerable portion of the blade to be sharpened with a single clamping of the holder. The shaft L is vertically to one side of the blade N, hence the combined weight of the blade and holder causes the blade to bear upon the wheel A as shown at O. Being eccentrically mounted, the radius of the wheel in the direction of the tip of the blade changes continually as the wheel is rotated, and the blade follows the changing contour, as shown in the dotted lines at P. In doing so, the point of contact between the wheel and the blade shifts from the tip of the blade to portions farther back from the tip, thereby grinding the entire cutting edge of the blade. The wheel A is secured to the shaft B by means of a nut U threaded to the shaft and bearing against a washer S, so that the wheel is clamped between washers S and S'. By loosening the nut U and sliding the wheel so that its center will be nearer to the center line of the shaft or farther from the same, the throw or amount of oscillation of the wheel can be regulated to match the varying length of the cutting edges of different sickle blades.

Being eccentrically mounted upon its shaft, the grinding wheel, if of the ordinary design, would be out of balance and would have a jerky and uneven action. I, therefore, balance the wheel in relation to the shaft, preferably by recessing a portion R on each side of the wheel in the general direction of its greatest radius. By carefully planning this recessing, the weight is distributed so that the wheel will not only be substantially balanced when standing still, but will also have a running or dynamic balance when rotating.

While I have shown the oscillating holder K as pivoted at the nearer end of the trough J, it is obvious that the holder might be pivoted at the opposite side as at V by changing the length and shape of the arms W of the holder. By thus shifting the pivot of the holder, the angles presented successively to the blade while the wheel is rotating may be varied considerably, and I do not wish to be limited to the particular location of the pivot as pictured at L. Neither do I wish

to be limited to a pivoted mounting of the holder K, as the same may be mounted in any way that will allow the blade to follow the contour of the wheel without moving transversely with respect to the wheel. Nor do I wish to be limited to the particular shape of wheel or arrangement of driving mechanism shown, as it is obvious that numerous changes could be made in the same without departing from the spirit of my invention.

What I claim as new and desire to cover by Letters Patent is:

1. A grinding machine including a grinding wheel having an approximately central perforation rectangular in section; a shaft having a square section; clamping means for securing the wheel eccentrically upon the shaft; and an oscillating holder for rigidly clamping the blade, the holder being oscillated by the weight of the blade pressing against the eccentrically mounted wheel.

2. A grinding machine including a shaft; a grinding wheel slidably mounted thereon; clamping means for securing the wheel eccentrically upon the shaft; and a movable holder for rigidly clamping the blade; the holder being so mounted that the eccentricity of the wheel will move the holder to and fro with each rotation of the wheel, whereby the extent of motion of the holder may be varied by changing the eccentricity

with which the wheel is clamped upon the shaft.

3. A grinding machine including a grinding wheel mounted eccentrically upon its shaft; and a movable holder for rigidly clamping the blade; the said holder being so mounted that the eccentricity of the wheel will move the holder to and fro with each rotation of the wheel, thereby causing the holder to present various portions of the blade to the surface of the wheel; the grinding wheel being dynamically balanced with respect to the shaft, whereby the eccentricity of the wheel is prevented from imparting a jerky motion to the holder.

4. A grinding machine including a grinding wheel mounted eccentrically upon its shaft, a portion of the wheel being cut away to lighten the wheel in the direction of its greatest eccentricity; and a movable holder for the blade, the holder being so mounted that the eccentricity of the wheel will move the holder to and fro with each rotation of the wheel; the said lightening of the wheel serving to balance the latter with respect to the shaft, whereby the eccentricity of the wheel is prevented from imparting a jerky motion to the holder.

JOHN E. VOGT.

Witnesses:

ALBERT SCHEIBLE,
CHAS. F. VOGT.