This invention relates to sharpening devices especially designed for sharpening the disks of agricultural machines, such as plow and harrow disks, and other round bevelled objects.

An object of the present invention is to provide means for mounting the disk to be sharpened to engage an emery or other abrasive wheel in such manner that rotation of the wheel will rotate the disk and uniformly sharpen the latter, and will prevent undue heating of the disk and consequent injury to the temper of the metal due to the rotary movement of the disk.

Another object of the invention is the provision of means for automatically feeding the work to the wheel as the sharpening operation progresses.

Another object of the invention is to so mount the work holder as to provide for angular adjustment with respect to the wheel and thus obtain any desired bevel for the sharpened edge.

With the above and other objects in view, the invention further includes the following novel features and details of construction, to be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings—

Figure 1 is an elevation partly broken away and shown in section and illustrating the invention in position for use.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1 and Figure 4 is a top plan view.

Referring to the drawings in detail wherein like characters of reference denote corresponding parts, the invention is shown as attached to the support of an emery or other abrasive wheel. It will be obvious however that the device may form a permanent part of an emery wheel support so as to provide a unitary structure.

In the form of the invention shown there is provided a frame which includes a substantially V-shaped end member 11. This member includes the intermediate vertical portion and an oppositely inclined hopper and lower portions 12 and 13, respectively. Pivotedly secured to this end member as shown at 14 is an upper bar 15 and a lower bar 16, so that a substantially U-shaped frame is formed. The free ends of the bars 15 and 16 are connected for relative movement by means of a rod 17. One end of this rod is secured to the upper bar 15 as shown at 18 and extends through an elongated opening 19 provided in the bar 16. An abutment member 20 is mounted upon the rod 17 and engages the under face of the bar 16, while a spring 21 surrounds this rod and bears against the upper face of the bar 16 and the element 18 which is carried by the bar 16. The spring 21 therefore acts to force the free ends of the bars 15 and 16 apart. The spring 22 which is also mounted upon the rod 17 bears against the member 20 to force the latter forward, and the tension of this spring is controlled by a wing nut 23.

Downward movement of the bar 16 is limited by means of a hand screw 24 which threadedly engages the outer end of the inclined portion 13 of the member 11.

The upper bar 15 is provided with a longitudinally disposed slot 25, and extending through this slot is the threaded shank 26 of a work collar 27. This collar includes a collar 28 upon which is swivelled a support 29, a stem 30 rising centrally from this support. The support is swivelled upon the collar 28 as indicated at 31.

The disk to be sharpened is indicated at 32 and is mounted upon the support 29, the stem 30 extending through the usual central opening of this disk and through an opposed disk 32 which is also mounted upon the stem 30 and held in place by means of a wing nut 33. A threaded rod 34 is mounted in a bearing 35 provided at one end of the upper bar 15 and this rod threadedly engages the collar 28.

A crank handle 36 at the outer end of the rod 34 provides convenient means for rotation.

The upper inclined portion 12 of the end member 11 is provided with an opening for the passage of a bolt 37, whereby the device...
may be mounted upon an arm 38 which extends from or forms a part of an emery wheel support 29. A grooved arm 40 has its upper end pivotally secured to the upper bar 15 as shown at 41, and the teeth of this bar are adapted to engage a pin 42 which extends from the lower bar 16.

The disk 32 to be sharpened is secured upon the work holder for the support 29 and is adjusted so that its bevelled edge will engage the edge of the emery wheel. The hand screw 24 is then manipulated to force the bar 16 upwardly and yieldingly hold the disk in contact with the wheel.

The edge of the wheel 10 is bevelled as shown in Figure 4 of the drawings and the disk 32 engages this bevelled edge to one side of the center of the disk, so that rotation of the wheel 10 will cause the disk 32 to rotate. The wheel will thus act upon the bevelled edge of the disk throughout its entire circumference. Any suitable means may be provided for rotating the wheel 10, such as a grooved pulley 43 driven from a suitable source of power.

As the sharpening operation progresses, the springs 17 and 22 will keep the bevelled edge of the disk in contact with the wheel until the operation has been completed. By pressing downward upon the upper bar and engaging any of the teeth of the arm 40 with the stud 42, the upper bar may be held depressed to provide for the removal or replacement of the disk.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is hereby reserved to make such changes as properly fall within the scope of the appended claims.

Having described the invention what is claimed is:

1. In combination with a rotatably mounted bevelled abrasive wheel and its support, a frame including an end member, upper and lower bars having one of their ends pivotally secured to the end member, a work holder slidingly mounted upon the upper bar, means to secure the work to the holder, means to move the holder longitudinally of the bar toward and away from the wheel, means to secure the end member to the wheel support to cause the wheel to engage the work at one side of the center of the wheel, whereby the work will be rotated by rotation of the wheel, means to limit downward pivotal movement of the lower bar, means to hold the work in disengaged position against the action of the yielding means.

2. In combination with a rotatably mounted bevelled abrasive wheel and its support, a frame including an end member, upper and lower bars having one of their ends pivotally secured to the end member, a work holder slidingly mounted upon the upper bar, means to secure the work to the holder, means to move the holder longitudinally of the bar toward and away from the wheel, means to secure the end member to the wheel support to cause the wheel to engage the work at one side of the center of the wheel, whereby the work will be rotated by rotation of the wheel, means to limit downward pivotal movement of the lower bar, means to hold the work in disengaged position against the action of the yielding means.

3. In combination with a rotatably mounted bevelled abrasive wheel and its support, a frame including an end member, upper and lower bars having one of their ends pivotally secured to the end member, a work holder slidingly mounted upon the upper bar, means to secure the work to the holder, means to move the holder longitudinally of the bar toward and away from the wheel, means to secure the end member to the wheel support to cause the wheel to engage the work at one side of the center of the wheel, whereby the work will be rotated by rotation of the wheel, means to limit downward pivotal movement of the lower bar, means to hold the work in disengaged position against the action of the yielding means.

4. In combination with a rotatably mounted bevelled abrasive wheel and its support, a frame including an end member and upper and lower bars having one of their ends pivotally secured to the end member, a work holder slidingly mounted upon the upper bar, means to secure the work to the holder, means to move the holder longitudinally of the bar toward and away from the wheel, means to pivotally secure the end member to the wheel support to adjust the work with respect to the wheel and to rotate the work through rotation of said wheel, means to limit downward pivotal movement of the lower bar, and means connecting the other ends of the bars to yieldingly force the work in contact with the wheel.

5. In combination with a rotatably mounted bevelled abrasive wheel and its support, a frame including an end member and upper and lower bars having one of their ends pivotally secured to the end member, a work holder, means to limit downward pivotal movement of the lower bar, and means connecting the other ends of the bars to yieldingly force the work in contact with the wheel at one side of the center of the wheel, whereby the work will be rotated by rotation of the wheel, means to limit downward pivotal movement of the lower bar, means to hold the work in disengaged position against the action of the yielding means.
ingly force the work in contact with the wheel.

6. In combination with a rotatably mounted abrasive wheel and its support, a frame including a substantially V-shaped end member, upper and lower bars pivotally secured to said member, a work holder adjustable upon the upper bar, means to secure the work to the holder, means connecting the free ends of the bars to yieldingly force the same relatively outward and engage the work with the wheel, adjustable means to limit downward movement of the lower bar, and means to secure the frame to the wheel support.

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