July 5, 1949. H. M. GOODWIN 2,475,235

PORTABLE DISK SHARPENER

Filed Oct. 3, 1947

Fig. 1

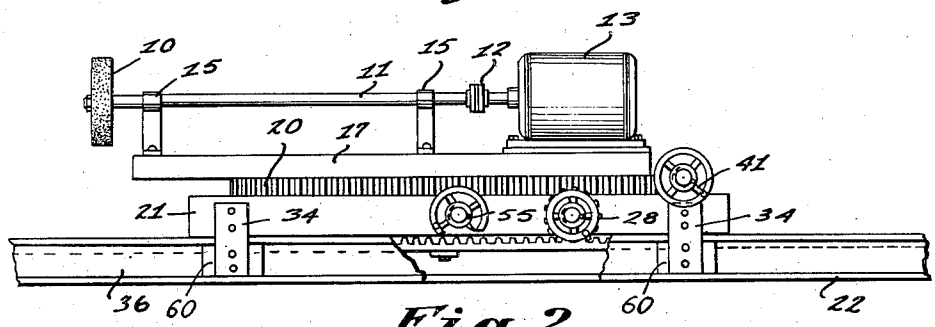


Fig. 2

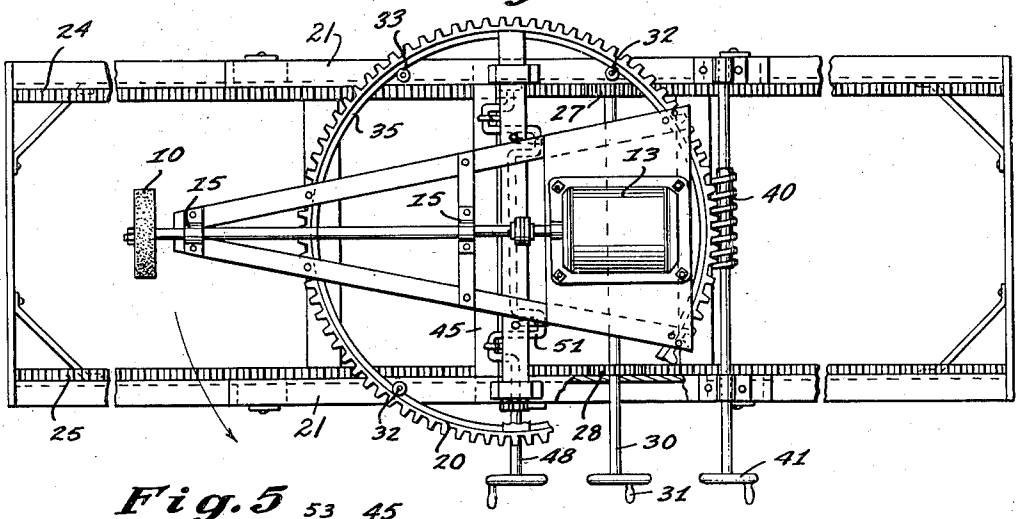
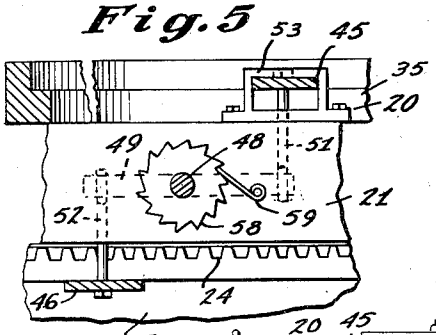


Fig. 5



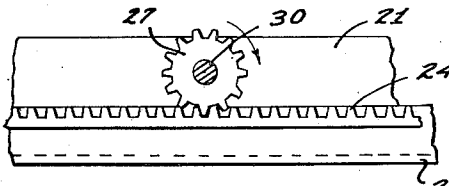


Fig. 3

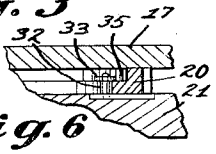


Fig. 6

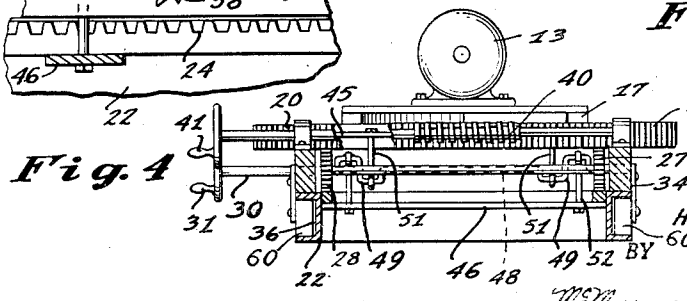


Fig. 4

INVENTOR.
HAROLD M. GOODWIN

McMorrow, Berman & Davidson
ATTORNEYS

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PORTABLE DISK SHARPENER

Harold M. Goodwin, Neepawa, Manitoba, Canada

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3 Claims. (Cl. 51—166)

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This invention relates to a portable machine for grinding or sharpening the discs or other parts of agricultural implements.

It is an object of the invention to provide such a machine that is easily adjustable to operate against any face of a disc, so that the agricultural implement need not be dismantled in order to have its disc sharpened.

A preferred embodiment of the invention is illustrated in the accompanying drawings, but it is understood that modifications may be made without departing from the spirit of the invention as hereinafter claimed.

Figure 1 is a front elevation of the new and improved sharpener.

Figure 2 is a plan view thereof.

Figure 3 is an enlarged elevation of a gear for adjusting the sharpener longitudinally.

Figure 4 is a side elevation, taken from the right and looking left, some parts being shown in section.

Figure 5 is an enlarged front elevation, partially in section, of a means for locking the machine in adjusted position for grinding.

Figure 6 is a vertical section through a portion of the gear.

The apparatus comprises a rotary emery stone 10 that is to be applied to the face of a disc to sharpen the latter. The stone 10 is keyed on a longitudinal horizontal shaft 11, which is coupled by a coupling 12 to a gasoline or electric motor 13. Support for the shaft 11 is afforded by two or more bearings 15.

The bearings 15 and the motor 13 are mounted on a triangularly-shaped platform 17, the legs of the triangle diverging from an apex near the stone 10. The platform 17 is secured to a large circular gear 20, which is rotatable about a vertical axis, as will be described more particularly hereinafter. The gear 20 itself is rotatable on a horizontal frame 21, and the frame 21 is movable longitudinally of the bed 22 by means of two racks 24 and 25 in the bed 22. Engaging the racks 24 and 25 are two gears 27 and 28, fixed on a horizontal shaft 30 journaled in the walls of the frame 21. Consequently, as the shaft 30 is turned by a crank wheel 31, the frame 21 and the entire structure supported thereon will move longitudinally of the bed 22.

A series of rollers 32, each rotatable about a vertical axis, is fastened to the frame 21 and has a horizontal washer 33 fitting over a flange 35 on the upper surface of the gear 20. These rollers permit rotation of the gear 20 on the frame 21.

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On each side of the frame 21 are two straps 34 the lower ends of which are secured to respective blocks 60 slidable in a track 36 in each wall of the bed 22, to ensure smooth and aligned movement.

The gear 20 is rotatable with respect to the frame 21 by virtue of a transverse worm 40 that meshes with the teeth of the gear 20 at the tail end of the sharpener. The worm 40 is journaled in the walls of the frame 21, and of course is movable therewith with respect to the bed 22. A crank wheel 41 turns the worm 40, which rotates the gear 20 and its supported structure to move the stone 10 angularly to any desired position.

Transversely of the machine through the axis of the gear 20 are two horizontal bars 45 and 46. The upper bar 45 projects over and engages the circular flange 35 in the upper surface of the gear 20, and the lower bar 46 is in contact with the lower surface of the two racks 24 and 25 in the bed 22. A transverse shaft 48 having a double crank 49 is journaled in the walls of the frame 17, and an adjustable eye-bolt 51 connects one side of the crank 49 to the upper bar 45. A similar bolt 52 connects the other side of the crank 49 to the lower bar 46. These bolts 51 and 52 are pivotable with respect to the crank 49, so that as the shaft 48 is turned the bars 45 and 46 may be made to approach or recede. Of course, if the bars 45 and 46 approach each other, they will grip the gear 20 and the rack 24 of the bed 22, thereby locking the gear 20 to the bed 22. As a result, there will be no vibration or play of the gear 20 and its supported members with respect to the bed 22 while the stone 10 is in operation. A clamp 53 secured to the frame 21 passes around the bar 45 and facilitates adjustment of the bar 45 with respect to the gear 20.

For balanced locking, there may be two such double cranks 49 on the same shaft 48, in order to bind both sides of the gear 20 to both sides of the bed 22. The shaft 48 may be operated by a third crank wheel 55. To maintain the shaft 48 in its locked position, it may be provided with a ratchet wheel 58 and pawl 59, so arranged that the shaft 48 may be freely turned during its locking movement. To release the shaft 48, it is first necessary to withdraw the pawl 59.

In operation, the frame 21 is adjusted longitudinally by means of the crank wheel 31, and the platform 17 angularly by means of the crank wheel 41. When the stone 10 is in the correct grinding position, the parts are locked by means

of the crank wheel **55**. The motor **13** can then be actuated to operate the stone **10**.

The stone **10** can be quickly moved to any position to grind one disc or another, or one face or another of the same disc, as desired. The whole device may be mounted on a truck and made easily transportable to the site of the agricultural implement to be sharpened. If desired, the stone **10** may be replaced with a drill or other tool.

I claim:

1. A device of the character described, comprising a horizontal bed, a frame movable longitudinally of the bed, a platform movable angularly of the frame, a tool mounted on the platform, whereby the tool may be placed in a desired position against a piece of work, and means for locking the frame to the bed, the said locking means including a bar adapted to contact the frame, another bar adapted to contact the bed, a transverse shaft, and links connecting the shaft to the bars, whereby rotation of the shaft will cause the bars to approach or recede, so that when the bars approach each other they lock the frame and bed against relative movement.

2. Portable disc-grinding apparatus comprising an elongated, rectangular bed, a respective rack extending along each side of said bed at the top surface of the latter, a frame slidable on said bed, manually-operated means carried by said frame and engaging said racks to move said frame longitudinally of said bed, a worm gear journaled on said frame about an axis substantially perpendicular to said frame and said bed, manually-operated worm means carried by said frame operatively engaging said worm gear to rotate the latter, a platform carried by said worm gear and extending radially outwardly therefrom, a shaft journaled on said platform and extending longitudinally therefrom, a grinding wheel on the outer end of said shaft beyond said platform, and

a power unit mounted on said platform and drivingly connected to said shaft.

3. Portable disc-grinding apparatus comprising an elongated, rectangular bed, a respective rack extending along each side of said bed at the top surface of the latter, a frame slidable on said bed, manually-operated means carried by said frame and engaging said racks to move said frame longitudinally of said bed, a worm gear journaled on said frame about an axis substantially perpendicular to said frame and said bed, manually-operated worm means carried by said frame operatively engaging said worm gear to rotate the latter, a platform carried by said worm gear and extending radially outwardly therefrom, a shaft journaled on said platform and extending longitudinally thereof, a grinding wheel on the outer end of said shaft beyond said platform, a power unit mounted on said platform and drivingly connected to said shaft to drive said grinding wheel, and locking means carried by said bed and operatively engaging said frame to releasably lock said frame in adjusted position lengthwise of said bed.

HAROLD M. GOODWIN.

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