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FRICTION-DRIVEN SHARPENING DEVICE

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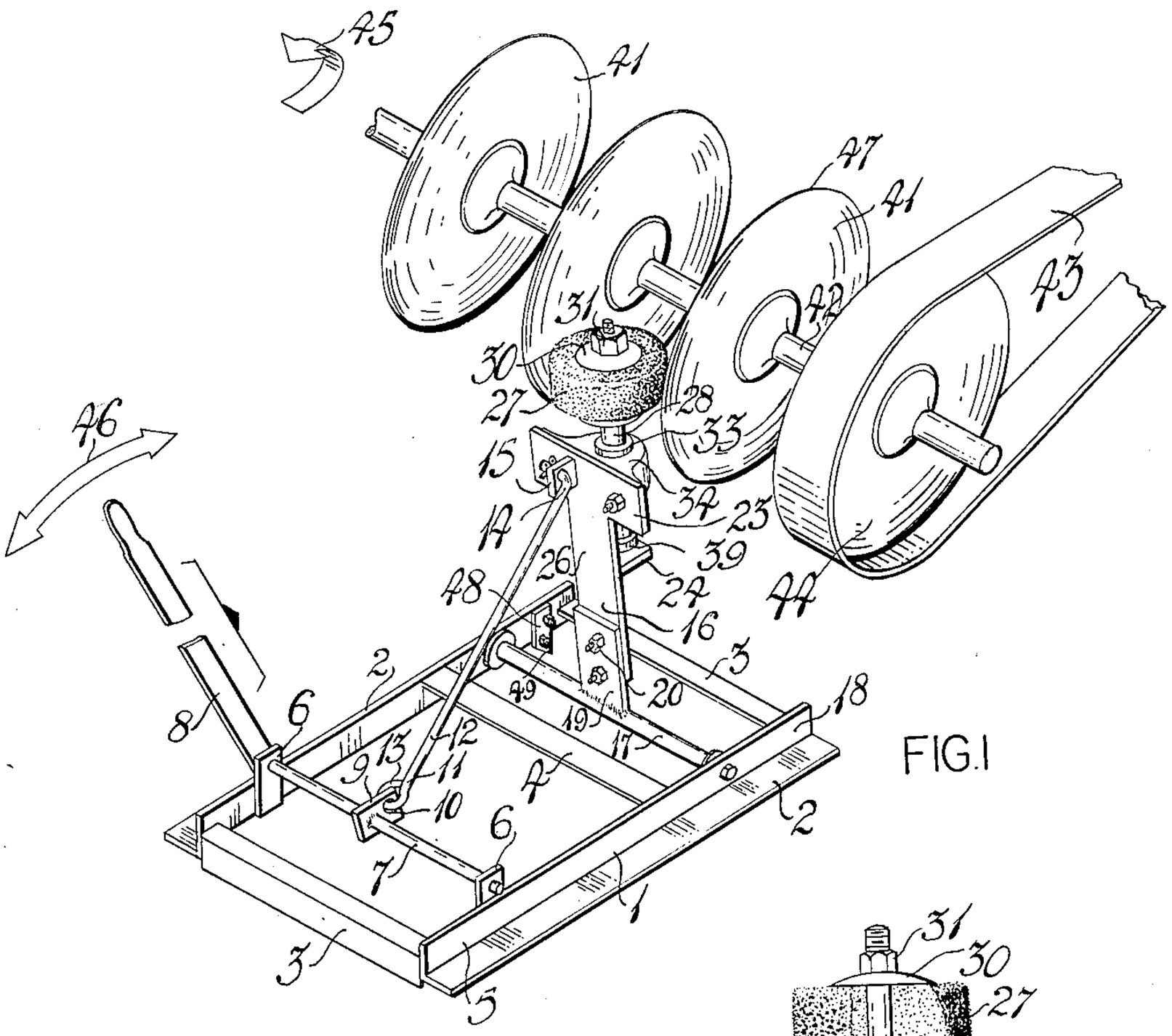

FIG.1

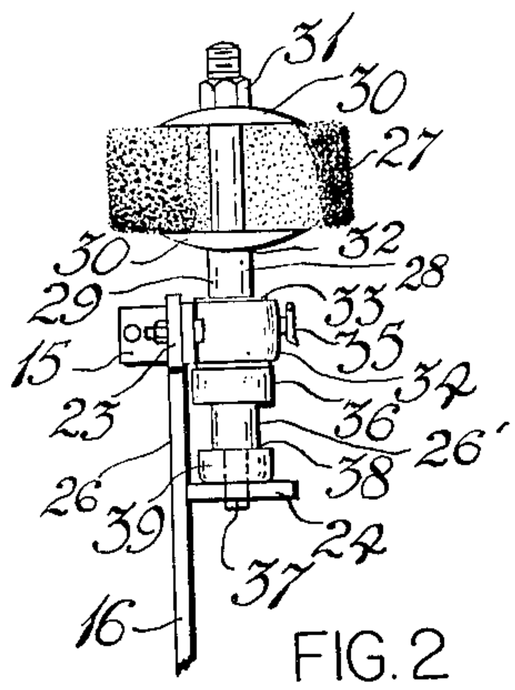

FIG. 2

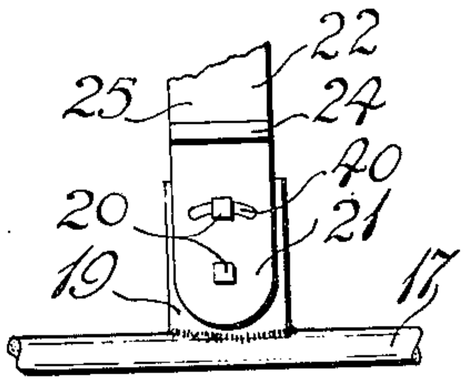

FIG. 3

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HIS ATTY'S

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FRICTION-DRIVEN SHARPENING DEVICE

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2 Claims. (Cl. 51—33)

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My invention relates to new and useful improvements in friction driven sharpening devices for discs, an object of my invention being to provide a device of the character herewithin described which facilitates the sharpening of discs of implements such as one-way disc plows, disc harrows, tillers and the like, without the necessity of removing the discs from the implements.

A further object of my invention in conjunction with the foregoing object, is to provide a device of the character herewithin described which permits the discs of implements to be sharpened in the field if desired.

Another object of my invention is to provide a device of the character herewithin described in which the discs of the implements are rotated by a source of power rather than the grinding head, the latter being driven by friction from the disc being sharpened. This permits more even sharpening of the disc to be undertaken and, if the discs are being sharpened in the field, it eliminates the necessity of providing a separate source of power for the disc grinder, as the disc assembly itself can be driven from the tractor towing the implement.

Yet another object of my invention is to provide a device of the character herewithin described the use of which permits the discs to be sharpened at any desired angle.

A still further object of my invention is to provide a device of the character herewithin described in which the grinding element is rotated by the disc being sharpened as the former is not at right angles to the disc, thereby ensuring that the grinding element wears evenly and retains its circularity.

Yet another object of my invention is to provide a device of the character herewithin described which is provided with a relatively large shaft for the mounting of the grinding element which acts as a counterbalance for the device thereby eliminating unnecessary vibration and wear.

A still further object of my invention is to provide a device of the character herewithin described which is easily dismantled for transportation purposes and yet which may be assembled rapidly and easily when required.

Still another object of my invention is to provide a device of the character herewithin described which is economical in manufacture, extremely rugged in construction, and otherwise well suited for the purpose for which it is designed.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as this specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings in which:

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Figure 1 is a perspective view of my device shown in relation to a set of discs being sharpened.

Figure 2 is a fragmentary side elevation of the upper part of the grinding head of my device sectioned in part for clarity.

Figure 3 is a fragmentary front elevation of the lower portion of the grinding head showing means for adjusting same in a vertical plane.

In the drawings like characters of reference indicate corresponding parts in the different figures.

Proceeding now to describe my invention in detail, it will be seen upon reference to the accompanying drawings that I have provided a base framework collectively designated 1 comprised of a pair of spaced angle irons 2 spanned by cross members 3 at the extremities thereof together with a stiffener 4 intermedially along the length thereof.

Substantially towards what I define as the rear end 5 of the base framework, I have provided a pair of upstanding lugs 6 welded to the longitudinal members 2 and within these lugs is journalled for rotation, a bar 7. Upon one outer end of the bar 7 is secured a control handle 8 extending substantially upwardly therefrom as clearly illustrated in Figure 1 of the accompanying drawings.

Approximately midway along the bar 7 is an offstanding, apertured lug 9 secured thereto and within the aperture 10 is pivoted one end 11 of a link rod 12 by means of an eye 13 formed therein. The link rod 12 extends forwardly and upwardly and is angulated at the opposite end 14 thereof in order to permit pivotal engagement of this end of the link rod within a further offstanding lug 15 secured to the upper end of my grinding head collectively designated 16. In at least one of the claims appended hereto, I have defined the rod 12 as linkage means extending between the lugs 9 and 15.

A rod 17 spanning the base framework substantially towards the forward end thereof, said rod being shouldered at the end thereof to permit retention within the upstanding flanges 18 of the aforementioned longitudinal members 2. A plate 19 is secured to the rod 17 medially along the length thereof as by welding, said plate being apertured to receive bolts 20 which also pass through corresponding apertures formed within the lower end 21 of a T-shaped support 22.

This support is formed, in this embodiment, from flat stock and it will be observed from reference to Figure 1 that the aforementioned lug 15 offstands from the rear of this support and substantially towards the upper end of cross bar 23. A bearing bracket 24 extends at right angles

from the front face 25 of the vertical component 26 of the support and acts to support the grinding element collectively designated 26'.

A cylindrical grindstone 27, of conventional design, is mounted upon the upper end 28 of a shouldered spindle 29 by means of plates 30 and the screw-threaded assembly 31, and in this connection it will be noticed that the lower of plates 30 rests against shoulder 32 formed upon spindle 29.

The lower portion of spindle 29 is journalled for rotation in a plane parallel to the longitudinal axis of the T-shaped support 22 by means of a bearing 33 secured to the cross bar 23 of the support by means of cap 34, lubrication being provided through oiler 35 in a conventional manner. Immediately below bearing cap 34, a collar 36 is secured to the spindle to prevent upward movement of same occurring.

The lower extremity 37 of the spindle is reduced in diameter thus forming a lower shoulder 38 which rests upon thrust bearing 39, in turn, directly supported by the aforementioned bearer bracket 24. Reference to Figure 2 of the accompanying drawings will show that the lower end 37 of the spindle passes through the thrust bearing 39 and also through the bracket 24 as clearly illustrated.

I have provided means to adjust the grinding head in the vertical plane with relation to the base framework, said means comprising an arcuate slot 40 formed at the point of attachment of the T-shaped support to the aforementioned plate 19, said T-shaped support pivoting on the lower of bolts 20 as clearly illustrated in Figure 3.

In operation, reference should be made to Figure 1 of the accompanying drawings in which I have illustrated a series of conventional discs 41 mounted upon a common shaft 42. A flat belt 43 is passed around a convenient disc specifically designated 44 and the shaft and discs are rotated in the direction of strap arrow 45 by means of said belt which extends to a convenient source of power (not illustrated). During rotation of the discs 41 as hereinbefore described, my device is positioned substantially as illustrated whereupon control handle 8 is moved in the direction of double-headed arrow 46 thereby causing the grinding head 16 to be moved forwardly or rearwardly in order to bring the stone 27 into contact with the rear edge 47 of the discs being sharpened. The rotation of disc 41 causes the stone 27 to rotate also together with supporting spindle 29, the inclination and pressure between disc and stone being controlled by the positioning of the base framework 1 and actuation of handle 8.

If desired, the grinding head 16 may be adjusted in the vertical plane by means of the arcuate slot 40 as hereinbefore described thus permitting the operator to adjust the stone 27 to the best advantage.

If the device is being used upon a relatively hard surface such as a concrete floor, then same may be steadied by the operator placing his foot upon the rear transverse member 3. However, if the device is being operated upon relatively soft ground, then I have provided means for anchoring the assembly in position, said means comprising in this embodiment, a downwardly extending projection 48 bolted to adjacent the front left-hand corner of the base framework with reference to Figure 1. The lower end 49 of this projection is preferably sharpened to permit ready penetration of same within the ground and this, in conjunction with the support provided by the operator's foot upon cross members 3, is sufficient to maintain the unit in a stable condition during operation.

In conclusion, I wish to point out the ease by which my device may be dismantled for ready transportation and in this connection, it may be desirable to have the operating handle 8 in two portions adjacently connected together in the conventional manner.

In order to dismantle my device, it is merely necessary to remove the end 14 of the rod 12 from the lug 15 whereupon the grinding head 16 may be folded rearwardly to lie upon the base frame 1, the rod 12 also folding forwardly, and the handle 8 folded parallel with the adjacent side member 2 of the base frame 1.

Since various modifications can be made in my invention as hereinabove described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense.

What I claim as my invention is:

1. A friction-driven sharpening device for discs of one-way plows, disc harrows and the like, comprising in combination a rectangular base framework, a grinding head upstanding from said framework and pivoted thereto, said grinding head including a rod spanning said framework, a T-shaped support secured to said rod and upstanding therefrom, a spindle extending through bearings mounted upon said T-shaped support, said spindle journalled for rotation within said bearings, a cylindrical grinding element secured to said spindle; a control handle also pivoted to said framework, and linkage means extending between said handle and said head.

2. The device according to claim 1 in which said control handle is secured to one end of a rod spanning said framework and pivoted for rotation therein, an offstanding lug secured to said rod, a further offstanding lug secured to the upper end of said grinding head, said linkage means extending between said lugs and being freely pivoted thereto.

RUEBEN WALDBAUER.

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