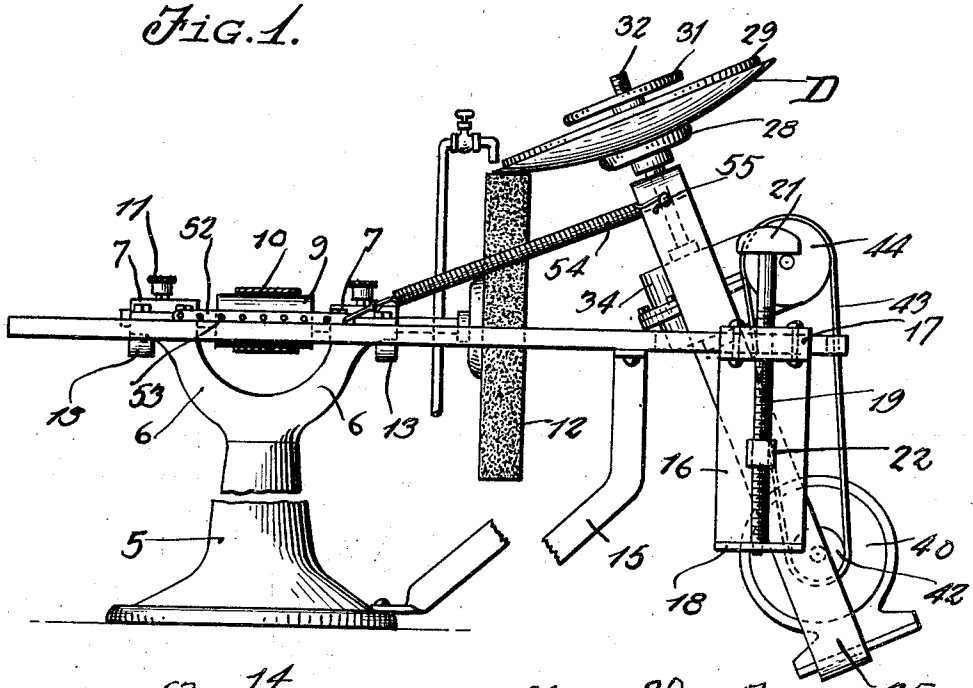
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AUTOMATIC DISK SHARPENER

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Fig. 1.



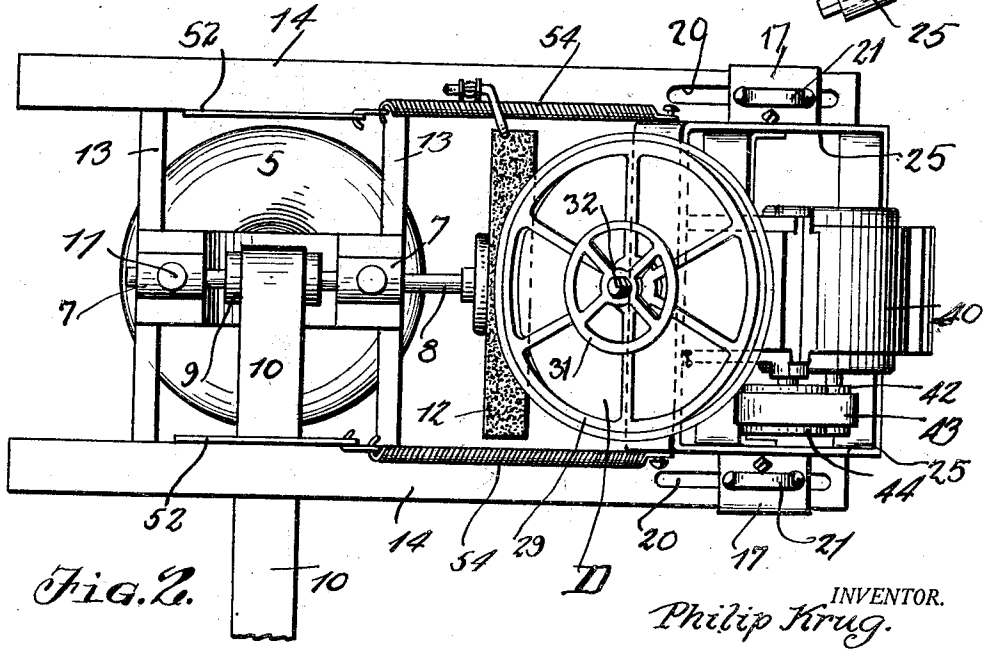


Fig. 2.

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Fig. 3.

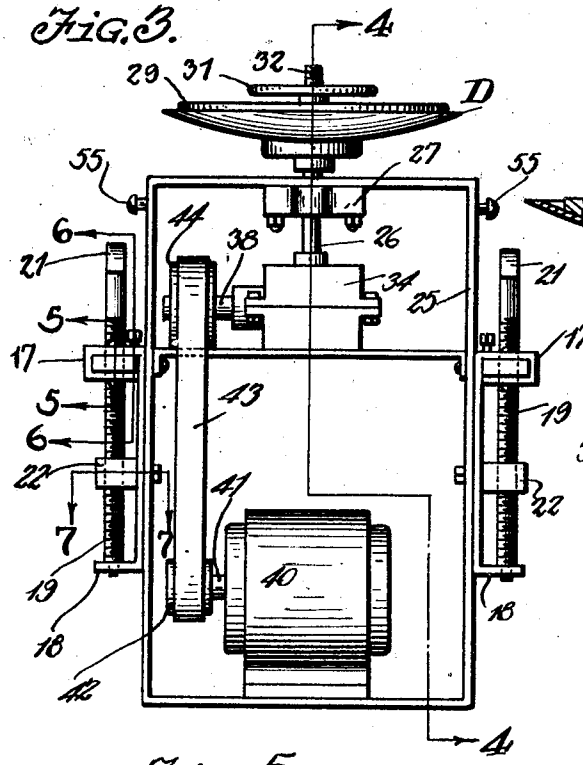


Fig. 4.

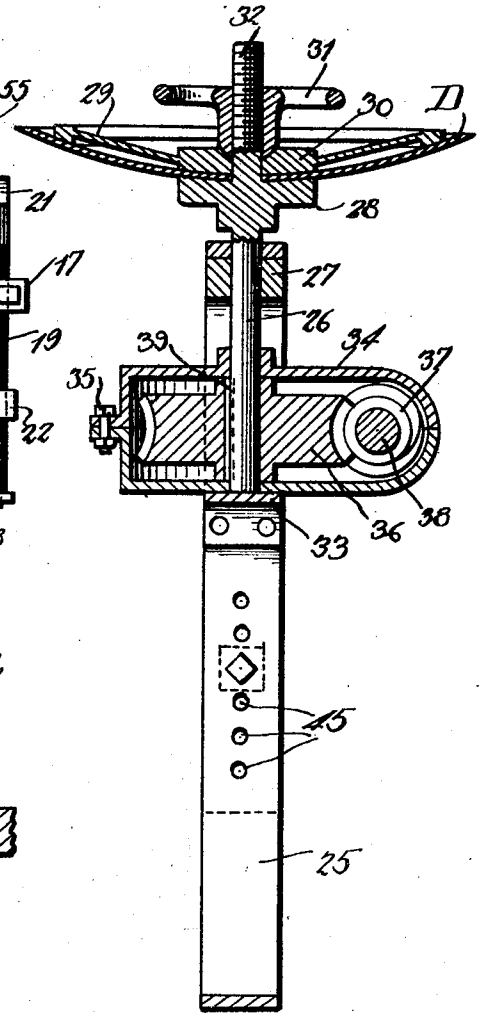


Fig. 5.

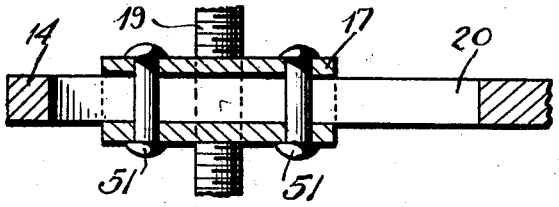


Fig. 6.

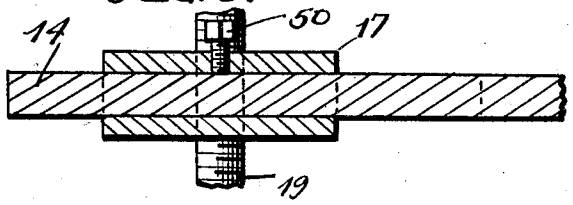
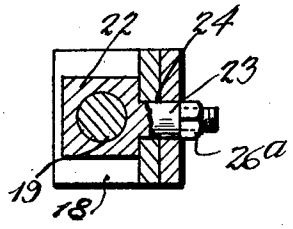


Fig. 7.



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UNITED STATES PATENT OFFICE

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AUTOMATIC DISK SHARPENER

Application filed May 10, 1929. Serial No. 362,033.

This invention relates to improvements in harrow disk sharpeners.

The primary object of this invention is to provide a device of the above character which is entirely automatic in operation.

Another object of this invention is to provide means for causing rotation of the harrow disk while the same is being sharpened.

A still further object of this invention is to provide a device of the above mentioned character whereby the disk harrow to be sharpened may be adjusted in any desired position due to the fact that the swinging support is adjustable relative to the abrasive wheel.

A still further object of this invention is to provide a harrow disk sharpener whereby different sizes of disks may be accommodated by merely making the necessary adjustments.

It has heretofore been common practice to sharpen harrow disks by mounting the disk upon a revoluble shaft in such a manner as to allow the disk to rotate on its own accord by contacting with the abrasive wheel or it has been customary to rotate the abrasive wheel by the harrow disk contacting therewith. In either instance such practice is objectionable due to the fact that the harrow disk edge is torn or roughened due to uneven speeds of the two elements. It has been noted under close observance that the above practice results in an uneven edge. It is proposed to prevent the above disadvantages by driving the abrasive wheel and harrow disk positively and not depend upon the rotation of the abrasive wheel to bring the circular edge of the disk harrow into engagement with the abrasive wheel.

Other objects and advantages of the invention will become apparent during the course of the following description forming a part of this specification and in which,

Figure 1 is a side elevational view of the invention, showing the manner in which the harrow disk is presented to the abrasive wheel;

Figure 2 is a top elevational view of the same showing the arrangement of the relative parts of the invention;

Figure 3 is an end elevational view of the invention showing the adjusting means for adjusting the harrow disk relative to the abrasive wheel;

Figure 4 is a cross sectional view taken on line 4—4 of Figure 3, illustrating the manner of securing the harrow disk to the rotary support and the gearing for driving the same;

Figure 5 is a cross sectional view of Figure 3 looking in the direction of the arrows showing the side supporting members and the adjusting screws passing therethrough;

Figure 6 is a cross sectional view on line 6—6 of Figure 3, showing the sliding frame support and the means for securing the same in adjusted position; and

Figure 7 is a cross-sectional view on line 7—7 of Figure 3, showing the pivot point of the harrow disk support.

In the drawings wherein for the purpose of a detailed description is illustrated a pedestal support 5 which may be placed on a suitable flat surface. The uppermost portion of the pedestal support 5 is forked to form extensions 6 which terminate in bearings 7 for a rotary shaft 8 adapted to be driven by a pulley 9 and belt 10. The bearings 7 may be lubricated in any usual fashion such as oil cups 11 mounted thereon. An abrasive wheel 12 is rigidly secured to one end of the shaft 8 which is of the peripheral face type and which is more or less the usual type of abrasive wheel used for sharpening instruments.

Transverse supporting bars 13 are mounted on the extensions 6 to form supports for the longitudinal side bars 14 which are secured thereto in any well known manner. Brace bars 15 have one end secured to the pedestal support 5 and their other end secured to the side bars 14 for the purpose of bracing the same.

Slidably mounted on one end of each of the side bars 14 is a bracket 16, having a looped upper end 17 of the same cross-sectional contour as the side bars 14. The lower end of the brackets 16 are flanged as at 18 to provide a bearing for the lower end of the screw 19, the upper end being passed

through openings in the loop 17 which register with a longitudinal slot 20 in the ends of each of the side bars 14. The adjusting screws 19 are each provided with a handle 21 at the uppermost end thereof for the purpose of raising and lowering the nuts 22 which are provided with pins 23 projecting through slots 24 in the brackets 16.

A rectangular frame 25 is pivotally secured to the pins 23 and held in place by the nuts 26*a* which are threaded on an extension of the pins 23. The rectangular frame 25 is adapted to form a bearing for a shaft 26 as at 27, and upon the uppermost end of the shaft is formed a circular boss 28, upon which the work or disk D is positioned and held thereon by means of a retaining disk 29 enlarged at the periphery and at the hub as at 30, whereby when the hand wheel 31 is turned down on the threaded extension 32 of the shaft 26, even pressure will be brought to bear on the disk D.

The rectangular frame 25 is presented at an angle to the abrasive wheel 12 in order to properly position the edges of the harrow disk D thereto as shown in Fig. 1.

A transverse bar 33, has its ends secured to the sides of the frame 25 for supporting a gear box 34 formed in sections and held together by fastening means 35. The lower end of the shaft 26 enters the gear box 34 and is provided with a worm gear 36 having threads on the worm 37 secured to the shaft 38. A key way is formed in the lower end of the shaft 26 which aligns with a keyway in the worm gear 36 wherein is received a key 39 for rigidly holding the worm gear from rotation thereon.

An electric motor 40 is fixed to the lowermost portion of the rectangular frame 25 having a shaft 41 to which is secured a pulley wheel 42 over which passes a belt 43 for connecting the motor to the pulley 44 of the shaft 38.

The side pieces of the rectangular frame 25 may be provided with a series of openings 45 shown in Figure 4 whereby the frame 25 may be further adjusted relative to the supporting pivot pin 23. Means may also be provided such as the machine screws 50, for holding the looped end 17 in adjusted position relative to the side bars 14. The loops 17 may be provided with rivets 51 which register with the slots 20 for the purpose of forming limit stops for the looped ends 17 of the brackets 16.

Formed on the side bars 14 are extensions 52 having a series of openings 53 for receiving one end of springs 54, the other ends of the springs 54 being secured to the pins 55 on the sides of the rectangular frame 25. The springs 54 are adapted to hold the harrow disk D presented to the abrasive wheel 12 in a resilient manner and by varying the tension of the spring the pressure of the disk D will be varied on the abrasive wheel.

It is clearly obvious that the angularity of the edge desired on the disk D may be accomplished by making the necessary adjustments, whereby the harrow disk may be presented to the abrasive wheel at the will of the operator.

It is to be understood that the form of the invention shown and described is to be taken as a preferred example of the same and that various changes in the shape, size, and arrangement of parts and accessories may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

I claim:—

A grinding machine of the character described, a pedestal support, a shaft journalled in the support, an abrasive wheel mounted on the shaft, a pulley mounted on the shaft for causing rotation thereof, side bars secured to the pedestal support, brackets mounted on the end of each side bar for horizontal adjustment, a rectangular frame pivoted to said adjustable brackets, means for raising or lowering the rectangular frame relative to the brackets, a rotary work support mounted in the upper portion of rectangular frame, an electric motor carried by the lowermost portion of the rectangular frame, drive means associated with the electric motor and rotary work holder, and resilient means for holding the rectangular frame presented to the abrasive wheel.

In testimony whereof I affix my signature.

PHILIP KRUG.