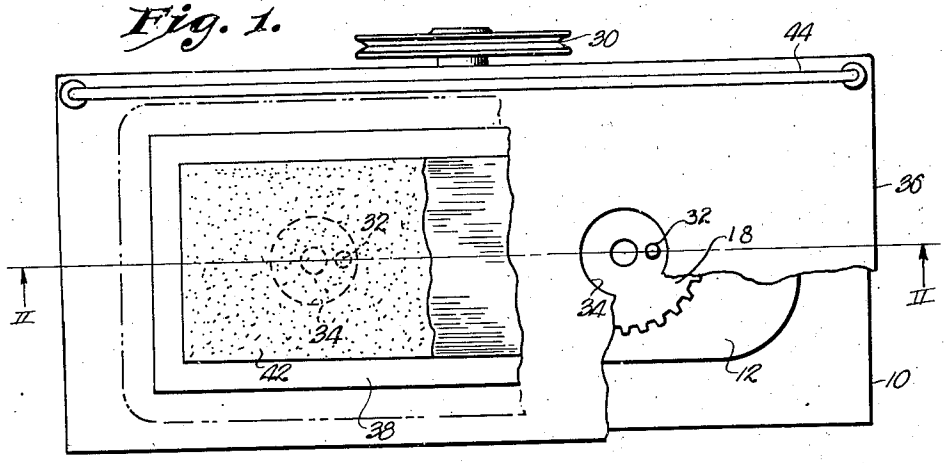
Dec. 3, 1946. A. J. FORD 2,412,141

MECHANICAL GRINDING STONE

Filed May 7, 1945

Fig. 1.



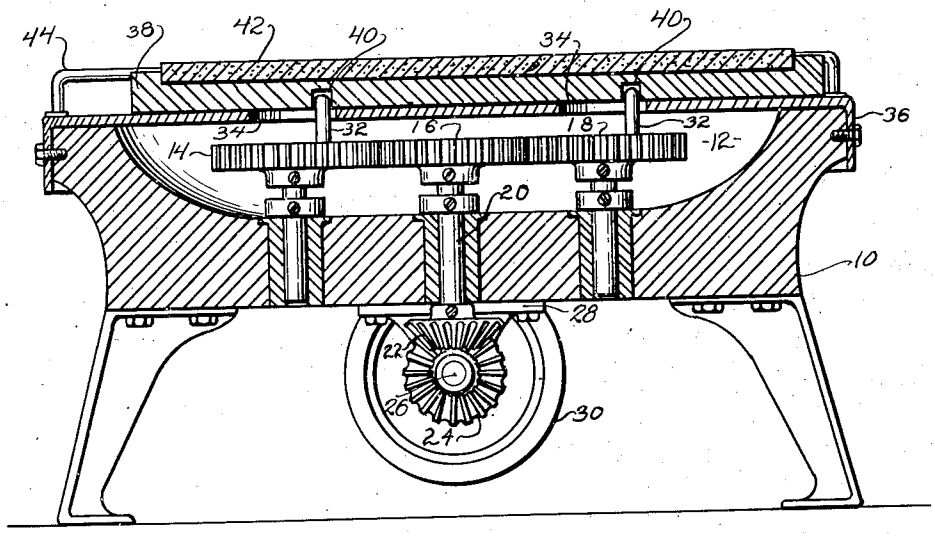


Fig. 2.

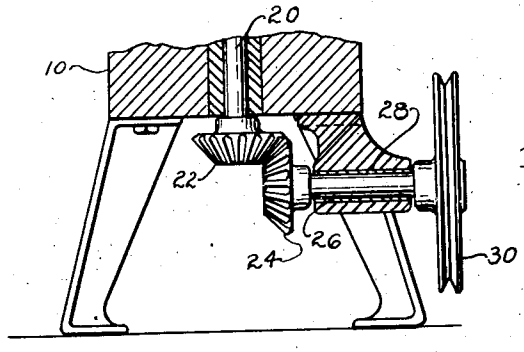


Fig. 3.

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MECHANICAL GRINDING STONE

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2 Claims. (Cl. 51—119)

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This invention relates to grinding equipment of the type employed in sharpening tools, and the primary aim is the provision of such equipment wherein the abrading stone is moved through its path of travel by power driven elements, all to the end that the operator may hold the tool being sharpened in a stationary condition while the cutting edge is being formed thereon.

One of the important objects of this invention is to provide a mechanical grinding stone, the nature whereof permits mounting the same on a work bench where actuation of the movable parts may be caused through the application of power from a small motor.

Other objects of the invention include the provision of a grinding stone of the aforementioned type wherein the stone is held for travel through an orbital path; the support for the stone comprises a housing for a train of gears specially designed to motivate the stone; the stone may be easily removed without manipulating set screws, clamps or other manually operable instrumentalities; the stone and its holder is positioned close to a supporting rail designed to steady the operator's hand and the work; and the support for the stone is in the nature of a table adapted to house the gear train through the medium whereof power is applied.

Other objects of the invention will appear during the course of the following specification, referring to the accompanying drawing, wherein:

Fig. 1 is a top plan view of the mechanical grinding stone embodying the present invention, parts being broken away for convenience of illustration.

Fig. 2 is a vertical longitudinal sectional view taken on line II—II of Fig. 1; and

Fig. 3 is a fragmentary vertical central sectional view showing the manner of connecting the equipment to a source of power.

It is common knowledge that workmen have heretofore sharpened tools of all description by drawing the same over the surface of abrading stones and that the movement imparted to the tool being treated, is usually through a path of travel substantially orbital or in part, arcuate. Unless the tool is held at a precise angle and with skill and knowledge, the edge created is not true and the beveled portion is not of a form that produces best results.

To overcome this "human" element and to insure uniformity of pressure, movement and results, the mechanical grinding stone illustrated in the accompanying drawing has been designed. Only the preferred form of the invention has been

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illustrated, and the same comprises a table, generally designated by the numeral 10, in the top of which is formed a cavity 12 for the reception of a number of gears 14, 16 and 18 respectively.

Gear 16 is intermediate gears 14 and 18 and is mounted upon a shaft 20 journalled in table 10 and extending vertically therethrough to a point beneath table 10 where bevel gear 22 is affixed thereto. This bevel gear 22 is in mesh with another bevel gear 24 on shaft 26, journalled in bearing 28. A pulley wheel 30 on shaft 26 is the medium through which power may be applied to the train of gears 14, 16 and 18. A V-belt may be passed over pulley 30 and thence over a pulley on a motor or other source of power, not here shown.

Gears 14 and 18 each is provided with a peg 32 disposed eccentrically with respect to the center of rotation and these pegs project vertically and upwardly through openings 34 formed in a platform 36 constituting the top of the table. This platform 36 has a smooth, horizontal upper surface over which holder 38 may ride when the grinding stone is in operation. Holder 38 has sockets 40 to receive the respective pegs 32 and a grinding stone 42 is secured in any suitable fashion to holder 38, to the end that the upper surface thereof is presented for use.

A rail 44 is mounted on platform 36 and extends longitudinally along one edge thereof and adjacent to stone 42 where the operator may conveniently employ the same as a rest for his hand as the tool is held against stone 42.

When power is applied the train of gears having elements 14 and 18 therein will serve to rotate pegs 32 through like circular paths to smoothly shift holder 38 and the stone 42 along a path of travel that is kindred to the path which is normally established by the tool when being sharpened through the conventional hand method. The operator need only hold the tool at the proper angle, whereupon stone 42 will function without the expenditure of the operator's energy other than that required to hold the tool against the face of stone 42 with the required amount of pressure.

Advantages arising from a mechanical stone grinder made as above described, will be obvious to those skilled in the art, and they will likewise understand that modifications may be made without departing from the spirit of the invention or scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A mechanical grinding stone comprising a table having a flat, horizontal top provided with openings in the latter; a grinding stone slidably mounted on the table top and having sockets formed in the bottom thereof; a power driven shaft carried by the table; a train of gears beneath the table top; pins, eccentrically mounted on at least two of the gears and projecting upwardly through the openings in the table top and into the sockets of the stone holder; and structure operatively interconnecting the shaft and the train of gears to rotate the pins whereby to slide the stone holder through an orbital path over the table top.

2. A mechanical grinding stone comprising a table having a flat, horizontal top provided with

openings in the latter; a grinding stone slidably mounted on the table top and having sockets formed in the bottom thereof; a power driven shaft carried by the table; a train of gears beneath the table top; pins, eccentrically mounted on at least two of the gears and projecting upwardly through the openings in the table top and into the sockets of the stone holder; and structure operatively interconnecting the shaft and the train of gears to rotate the pins whereby to slide the stone holder through an orbital path over the table top, said table top having a stationary rail thereon adjacent to the stone holder for supporting the hands of the user as the grinding stone is being used.

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