July 31, 1951 K. T. KELLER 2,562,618

GRINDING WHEEL KNIFE SHARPENING ATTACHMENT

Filed Sept. 3, 1947

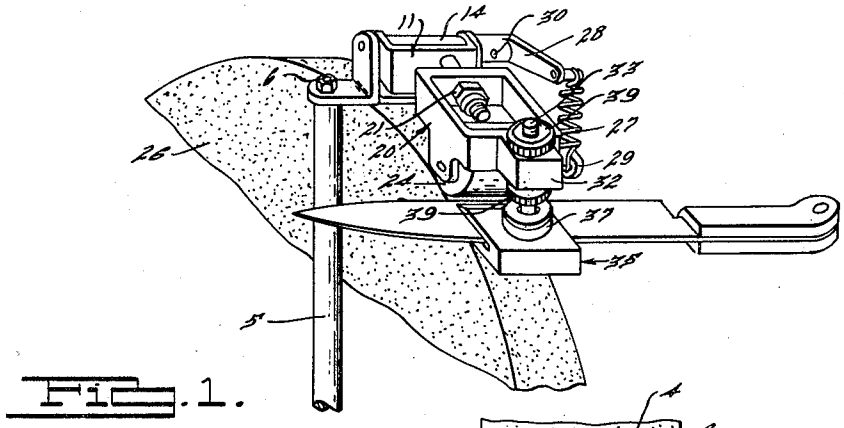


Fig. 1.

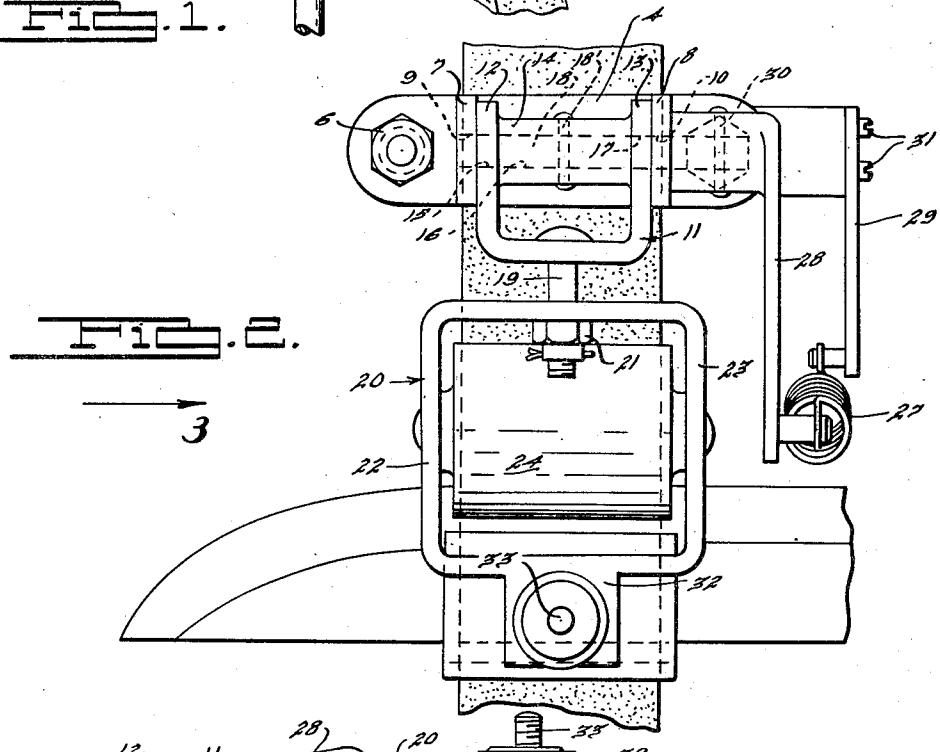


Fig. 2.

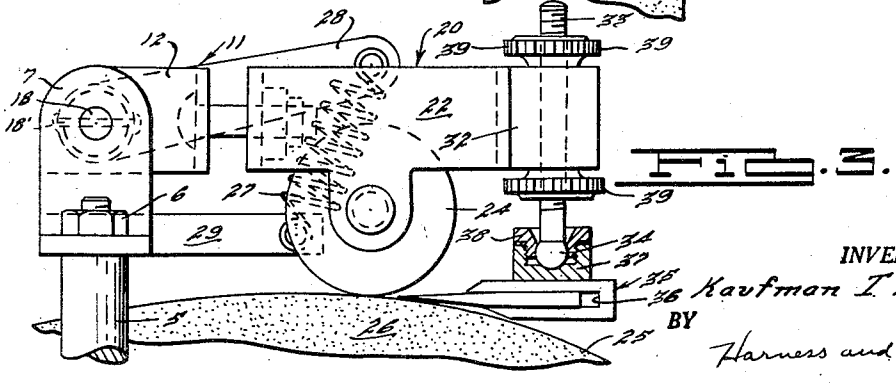


Fig. 3.

INVENTOR.
Kaufman T. Keller.
BY
Harness and Harris
ATTORNEYS.

Patented July 31, 1951

2,562,618

UNITED STATES PATENT OFFICE

2,562,618

GRINDING WHEEL KNIFE SHARPENING ATTACHMENT

Kaufman T. Keller, Detroit, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware

Application September 3, 1947, Serial No. 771,869

4 Claims. (Cl. 51—102)

1

My invention relates to grinding wheel attachments and more particularly to grinding wheel knife sharpening attachments.

The main object of my invention is to provide a grinding wheel with an attachment for guiding the motion of the blade over the surface of the grinding wheel.

Another object of my invention is to provide the attachment with a roller which is rotatable while in contact with the grinding wheel to further guide the motion of the blade over the surface of the wheel.

A further object of my invention is to provide means for yieldably urging the roller and a blade or other work against the periphery of the grinding wheel so as to govern the pressure with which the work is applied to the grinding surface.

Another object of the invention is to provide a pressure roller of this kind which readily picks up grit from the grinding surface of the wheel and so applies it in an abrading manner to the side of a blade opposite from the side operated upon by the grinding wheel as to remove the wire edge which is usually formed on a blade during sharpening operations.

Still another object of my invention is to provide the attachment with adjustable means for holding the blade to be sharpened against the grinding wheel at a selected angle to the periphery of the wheel. Other objects and advantages of my invention will become more apparent from the following description taken in connection with the accompanying drawings in which:

Fig. 1 is a fragmentary perspective view of the grinding wheel and work holding and guiding attachment embodying my invention.

Fig. 2 is a fragmentary plan view of the grinding wheel and holding and guiding attachment shown in Fig. 1.

Fig. 3 is a fragmentary side elevational view of the grinding wheel and work holding and guiding attachment illustrated in Figs. 1 and 2.

The work holding and guiding attachment illustrated in the drawing comprises a bracket 4 which is mounted and secured on the reduced threaded ends of a pair of vertical upright supports 5 one of which is shown in Figs. 1 and 3, by a pair of nuts 6. The other extremity of each support 5 may be mounted on the stationary structure of the grinding wheel, not shown. The bracket 4 is provided with a pair of outwardly extending flanges 7 and 8 which are provided with apertures 9 and 10. A U-shaped member 11 has a pair of flanges 12 and 13 which have a sleeve 14 welded between their inner surfaces. The flanges 12 and

2

13 as well as the sleeve 14 have aligning apertures 15, 16 and 17, respectively, disposed therein. The outer surfaces of the flanges 12 and 13 engage the inner surfaces of the flanges 7 and 8 in such a manner as to align the apertures 9, 15, 16, 17 and 10 for receiving the rod or shaft 18. The sleeve 14 is secured by the pin 18' to the rod 18 which is rotatable in the flanges 7 and 8 thereby allowing a pivotal motion of the U-shaped member 11. The rod 18 extends outwardly through the flange 8 to receive a crank 28 and is secured to it by a pin 30. The U-shaped member 11 has a trunnion 19 extending from its bight portion on which is journaled a box-like structure 20. The box-like structure 20 is shiftable axially of the trunnion 19 and has the limits of its linear motion defined by the bight portion of the U-shaped member 11 and a nut 21 mounted on the end of the trunnion 19. The pivotal axis of the box-like structure 20 is substantially normal to the shaft 18. This provides a universal joint action. Journaled between the side members 22 and 23 of the box-like structure 20 is a metal roller 24 which rests upon the periphery 25 of the grinding wheel 26. The roller 24 is yieldably urged toward the periphery 25 of the wheel 26 by a spring 27 which has one extremity connected to the crank 28 which is fixed to the protruding end of the shaft 18 and its other extremity connected to a stationary arm 29 mounted on the bracket 4 by screws 31. The weight of the roller 24 and the pivotally mounted structure on which it is journaled may be relied upon, in the absence of the spring 27 to urge the work against the wheel in some applications, but it is preferable to resiliently urge the roller toward the periphery of the wheel by a spring or other resilient means in most applications of the device.

Provided on the forward side of the box-like structure 20 is a lug 32 which has journaled therein a threaded pin 33. The lower extremity of the pin 33 is provided with a ball member 34 which is shiftably received within a blade holding block generally designated by the numeral 35. The blade holding block has a slot 36 for receiving a blade and is provided at its upper portion with a ball seat member 37. The ball member 34 is adjustably fitted to the ball seat member 37 by means of a threaded element 38. The vertical motion of the threaded pin 33 is regulated by means of the threaded nuts 39, one of which is disposed above and below the lug 32, respectively.

During the operation of this device the blade is moved back and forth transversely of the wheel

while the cutting edge of the knife is urged into the generally V-shaped space between the periphery of the roller **24** and the periphery of grinding wheel **26**. The block **35** serves to properly position the blade with a pressure predetermined by the action of the spring **27**. The roller **24** picks up grit from the grinding wheel and serves to remove any wire edge which tends to form on the cutting edge of the blade during the operation.

It should be noted that an emery wheel may be used instead of a grindstone for ordinary operation, or a steel wheel may be used in place of the grindstone when it is not necessary to grind metal.

The blade holding block **35** may be conveniently removed together with the threaded pin **33** and nuts **39**, if desired, in order to accommodate positioning of a blade, or any other piece of work, by manual operation. When the blade holding block **35** is removed, the roller **24** still serves its intended functions of assisting in guiding a blade or piece of work during movement of it across the periphery of the grinding wheel.

Although but one specific embodiment of the invention is herein shown and described, it will be understood that various changes in the sequence of operations, steps and materials employed may be made without departing from the spirit of the invention.

I claim:

1. Apparatus for positioning a blade relative to a grinding wheel comprising a support, a bracket carried by said support and having portions thereof defining a pivotal axis, a member mounted on said bracket and rotatable about the axis of said bracket, a frame structure, means mounting said frame structure on said member for rotation about an axis in a plane normal to said first mentioned axis and for linear movement in said plane, a cylindrical roller carried by said frame structure and adapted to frictionally engage said grinding wheel for rotation therewith, and means secured to said frame structure for holding said blade in engagement with said grinding wheel.

2. In grinding mechanism comprising a grinding wheel and means for supporting it for rotation; apparatus for positioning a blade relative to a grinding wheel comprising a support, a bracket carried by said support and having portions thereof defining an axis, a member mounted on said bracket and rotatable about said axis, a frame structure, means mounting said frame structure on said member for rotation about an axis in a plane normal to said first mentioned axis and for linear movement in said plane, a roller carried by said frame structure and adapted to frictionally engage said grinding wheel for rotation therewith, a rod rotatably mounted through said frame structure, and a blade holder adjustably secured to said rod and adapted to hold said blade in engagement with said wheel.

3. In grinding mechanism comprising a grinding wheel and means for supporting it for rotation; apparatus for positioning a blade relative to the grinding wheel comprising a support, a bracket carried by said support and having portions thereof defining an axis, a member mounted on said bracket and rotatable about said axis, a frame structure, means mounting said frame structure on said member for rotation about an axis in a plane normal to said first mentioned axis and for linear movement in said plane, a roller carried by said frame structure and adapted to frictionally engage said grinding wheel for rotation therewith, means secured to said frame structure adapted to hold said blade in engagement with the grinding wheel and said roller, a crank secured to and movable with said member, and a spring for operating said crank adapted to yieldably urge said roller into contact with the grinding wheel.

4. In grinding mechanism comprising a grinding wheel and means for supporting it; apparatus for positioning a blade relative to a grinding wheel comprising a support, a bracket carried by said support having portions thereof defining an axis, a member mounted on said bracket and rotatable about said axis, a frame structure, means mounting said frame structure on said member for rotation about an axis in a plane normal to said first axis and for linear movement in said plane, a roller carried by said frame structure and adapted to frictionally engage the grinding wheel for rotation therewith, a rod shiftably mounted on said frame structure, a blade holder adjustably secured to said rod and adapted to hold said blade in engagement with said grinding wheel, a crank secured to and movable with said member, and a spring for operating said crank and adapted to yieldably urge said roller into contact with the grinding wheel.

KAUFMAN T. KELLER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
31,461	Hyatt et al.	Feb. 19, 1861
348,497	Long	Aug. 31, 1886
448,616	Hudson	Mar. 17, 1891
853,958	Bowden-Smith	May 21, 1907
941,529	Myers	Nov. 30, 1909
977,172	De Vivo	Nov. 29, 1910
1,357,956	Cooke	Nov. 9, 1920
1,564,959	Holtzman	Dec. 8, 1925
1,870,817	Maag et al.	Aug. 9, 1932
1,870,818	Maag et al.	Aug. 9, 1932
2,161,992	Battocchi	June 13, 1939

FOREIGN PATENTS

Number	Country	Date
352,572	Great Britain	July 16, 1931
635,580	France	Dec. 29, 1927