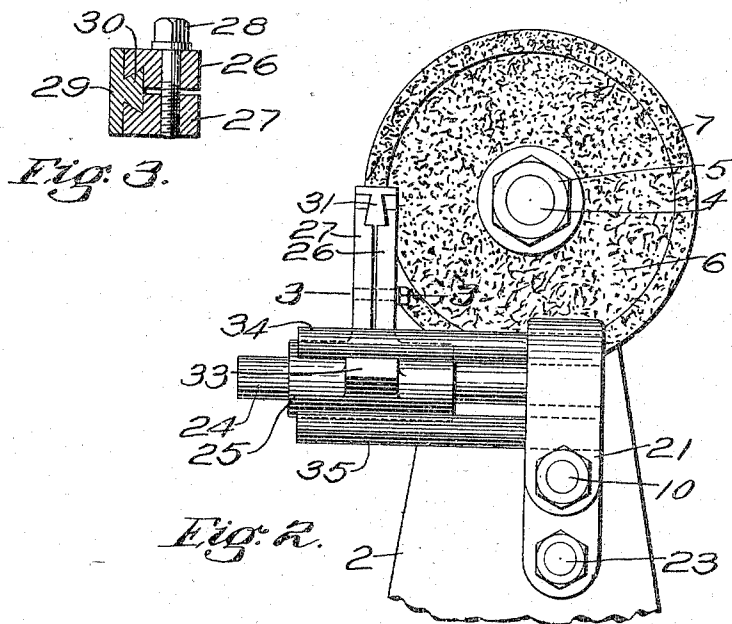
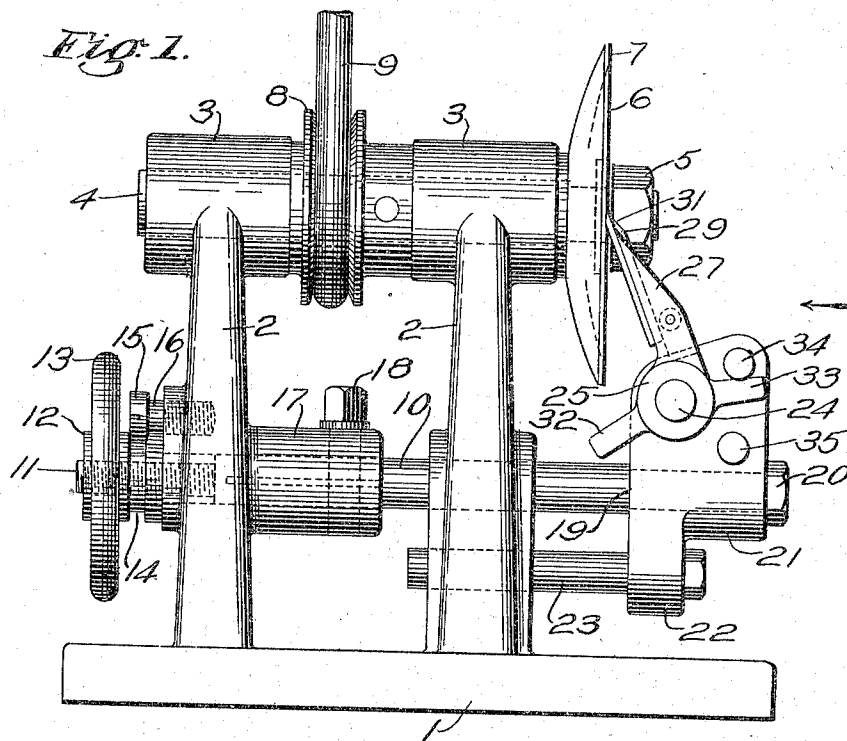


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KNIFE GRINDING MACHINE.
APPLICATION FILED JUNE 4, 1909.

958,030.

Patented May 17, 1910.



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UNITED STATES PATENT OFFICE.

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KNIFE-GRINDING MACHINE.

958,030.

Specification of Letters Patent.

Patented May 17, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM C. STEWART, a subject of the King of Great Britain, residing at Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Knife-Grinding Machines, of which the following description, in connection with the accompanying drawings, is a specification, like figures on the drawings representing like parts.

The invention to be hereinafter described relates to knife grinding or sharpening machines, and more particularly to such as are employed in sharpening or grinding knives used in shoe making machines.

The aims and purposes of the present invention are to provide a machine of the above general type which will be simple in construction, and efficient in operation, and wherein the grinding of one or the other edge of the knife may be conveniently performed, all of which and other objects will best be made clear from the following description and accompanying drawings of one form or embodiment of the invention.

In the drawings: Figure 1 is a side elevation of a machine embodying the present invention; Fig. 2 is an end view looking in the direction of the arrow, Fig. 1; and Fig. 3 is a detail section on line 3—3, Fig. 2.

Rising from a suitable supporting base 1 are the standards 2, 2, having at their upper portions suitable bearings 3, 3 for a shaft 4 to which is secured, by means of a set nut 5, an emery wheel 6. The emery wheel 6, see Figs. 1 and 2, is preferably concaved and is provided with a flat grinding portion 7 extending circumferentially of the emery wheel and forming a ribbon-like band, as will be apparent from Fig. 2.

Mounted on the shaft 4 is a pulley 8 which may be driven from any suitable source of power by a band 9, whereby the emery wheel 6 may be driven. Mounted to slide in suitable bearings supported by the standards 2, 2 below the shaft 4 is a work carrying shaft 10 provided with screw threads 11 at one end which are engaged by the interiorly screw-threaded hub 12 of a hand wheel 13, the hub 12 being provided with a circular recess 14 which engages the head 15 of a screw 16 secured to the standard 2; the construction being such that upon rotation of the hand wheel 13 the work carrying shaft 10 may be moved longitudi-

nally in its bearings, as will be readily understood.

In order that the shaft 10 may be clamped in adjusted position, it is surrounded by a split collar 17 extending from one of the bearings of said shaft, and said collar may be clamped to and about the shaft 10 by means of a set screw 18. When it is desired to adjust the work carrying shaft 10 longitudinally, the set screw 18 is manipulated to release the clamping action of the collar 17, and then, by manipulation of the hand wheel 13, proper adjustment of the work carrying shaft is effected, after which the set screw 18 is set up and the shaft held in adjusted position.

Secured between the shoulder 19 on the work carrying shaft and a nut 20 on the end thereof is the work carrier 21 having a downwardly projecting arm 22 to which is secured a guide pin 23, said guide pin working in a suitable recess or aperture in one of the standards 2; the construction being such that the work carrying shaft and consequently the work carrier may be held from rotative movement about the axis of the work carrying shaft while said shaft and work carrier are free to be moved longitudinally of the shaft axis.

Projecting from the work carrier 21 is a rod 24 on which is mounted the work holder 25, free to be moved longitudinally on said rod 24 and likewise free for rotative movement with respect thereto. The work holder 25 has the arms 26 and 27, preferably formed integral with said holder and connected by a clamping screw 28, whereby upon manipulation of the clamping screw 28 the said arms 26 and 27 may be forced together to clamp between them the knife which is to be ground.

The knife to be ground is preferably of the form indicated at 29, Fig. 1, and in cross section in Fig. 3, that is, it has a flat face portion and a dovetailed rib 30 extending longitudinally thereof, said rib near the cutting edge of the knife being beveled off, as at 31, Fig. 1. The arms 26 and 27 are correspondingly recessed to receive the dovetailed rib 30 of the knife 29, as indicated in cross section, Fig. 3.

The character of knife to be ground and the work to be performed thereby makes it desirable that both the front and back edges of the knife be subjected to the grinding

or sharpening action of the emery wheel. The work holder 25 is therefore readily removable from the rod 24 by sliding it lengthwise from said rod and is provided with the oppositely disposed stop wings 32 and 33. Projecting from the work carrier 21 parallel with the rod 24 are the stop rods 34 and 35 which are adapted to act as stops to the swinging movement of the work carrier by contacting with one or the other of said wings 32, 33, according to which side of the knife is being ground.

From the construction described it will be noted that the work carrying shaft with the work carrier and work holder movable therewith may be adjusted longitudinally of itself by the hand wheel 13 to cause the work carrier and work holder to move toward or from the emery or grinding wheel 6. The upper stop rod 34, by limiting the swing of the work holder 25 contra-clockwise, will define the character of the bevel given to the knife edge, and the lower stop 35, by contacting with the wing 33, will prevent the holder from being thrown so far back as to cause the wing 32 or other part of the holder to contact with the grinding wheel. During the grinding operation the work holder 25 is manipulated by hand back and forth across the band 7 of the emery or grinding wheel, and when one edge of the knife has been ground the work holder is removed from the rod 24 and reversed so that the other edge of the knife may be ground. Obviously changes might be made in the particulars of structure within the scope of the present invention.

What is claimed is:

1. In a knife grinding and sharpening machine, the combination of a grinding wheel, a work carrying head movable in a direction parallel to the axis of the grinding wheel, a rod projecting from the head, a work holder freely movable about and longitudinally of said rod, stop rods projecting from the head parallel to the first mentioned rod, and a tail piece projecting from the holder and extending between the rods to limit the swinging movement of the holder as it is moved along its supporting rod.

2. In a machine for grinding and sharpening leather cutting knives having beveled edges of different angles, the combination of a single grinding wheel, a head provided with a work holder supporting rod and two parallel stop rods, a reversible work holder slidable along said supporting rod and free to turn thereon, and tail pieces projecting in

opposite directions from the said holder, either one of which may be extended between the stop rods to determine the bevel to be given the knife edges by the grinding wheel when the holder is slid in initial or reversed position on said supporting rod.

3. In a machine for grinding and sharpening leather cutting knives having beveled edges of different angles, the combination of a single grinding wheel, a head provided with a work holder supporting rod and two parallel stop rods, a reversible work holder slidable along said supporting rod and free to turn thereon, tail pieces projecting in opposite directions from the said holder, either one of which may be extended between the stop rods to determine the bevel to be given the knife edges by the grinding wheel when the holder is slid in initial or reversed position on said supporting rod, a shaft on which the head is mounted, and means for adjusting the shaft.

4. In a knife grinding and sharpening machine, the combination of a driving shaft, a grinding wheel carried thereby, a work carrier movable in a direction toward and from the plane of the grinding face of the said wheel, a rod projecting from said carrier, a reversible work holder mounted to slide and turn on said rod, to present the opposite edges of the knife to the same grinding wheel and means including oppositely disposed stop wings to determine the grinding angle in either position of the reversible work holder and limit the turning movement of the work holder on said rod.

5. In a grinding and sharpening machine, the combination of a driving shaft, a grinding wheel mounted thereon, a work carrier, means to adjust the work carrier toward and from the plane of the grinding face of said wheel, a supporting rod projecting from said carrier substantially parallel to the said grinding face, a work holder mounted to slide and swing on said supporting rod and provided with a stop wing, and stop rods on the carrier between which the stop wing extends to limit its swinging movement on said carrier as the holder is moved longitudinally on said supporting rod.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM C. STEWART.

Witnesses:

ROSWELL F. HATCH,
REDFIELD H. ALLEN.