W. C. STEWART.

KNIFE GRINDING AND SHARPENING MACHINE.

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958,032. Patented May 17, 1910.

Fig. 1.

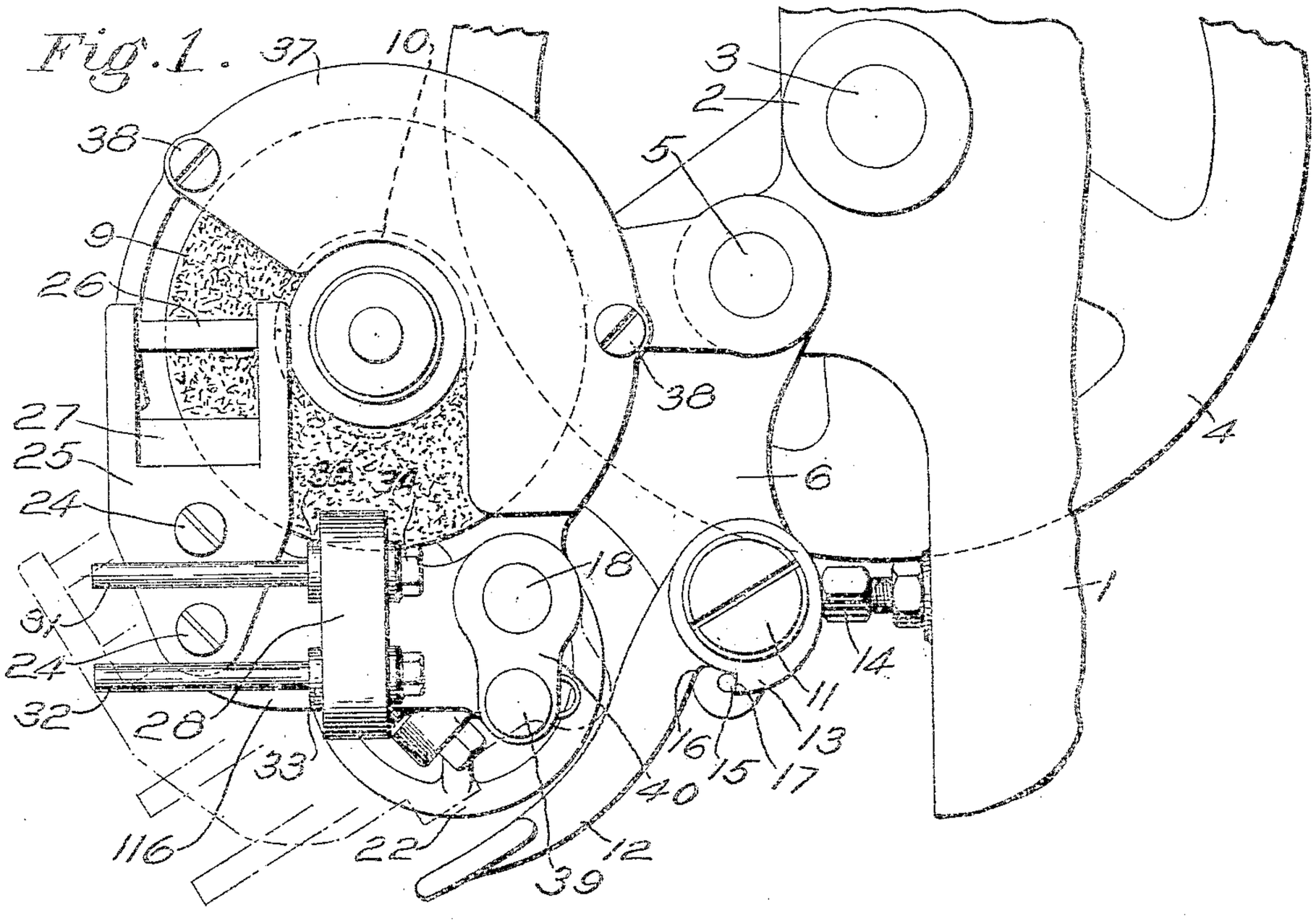
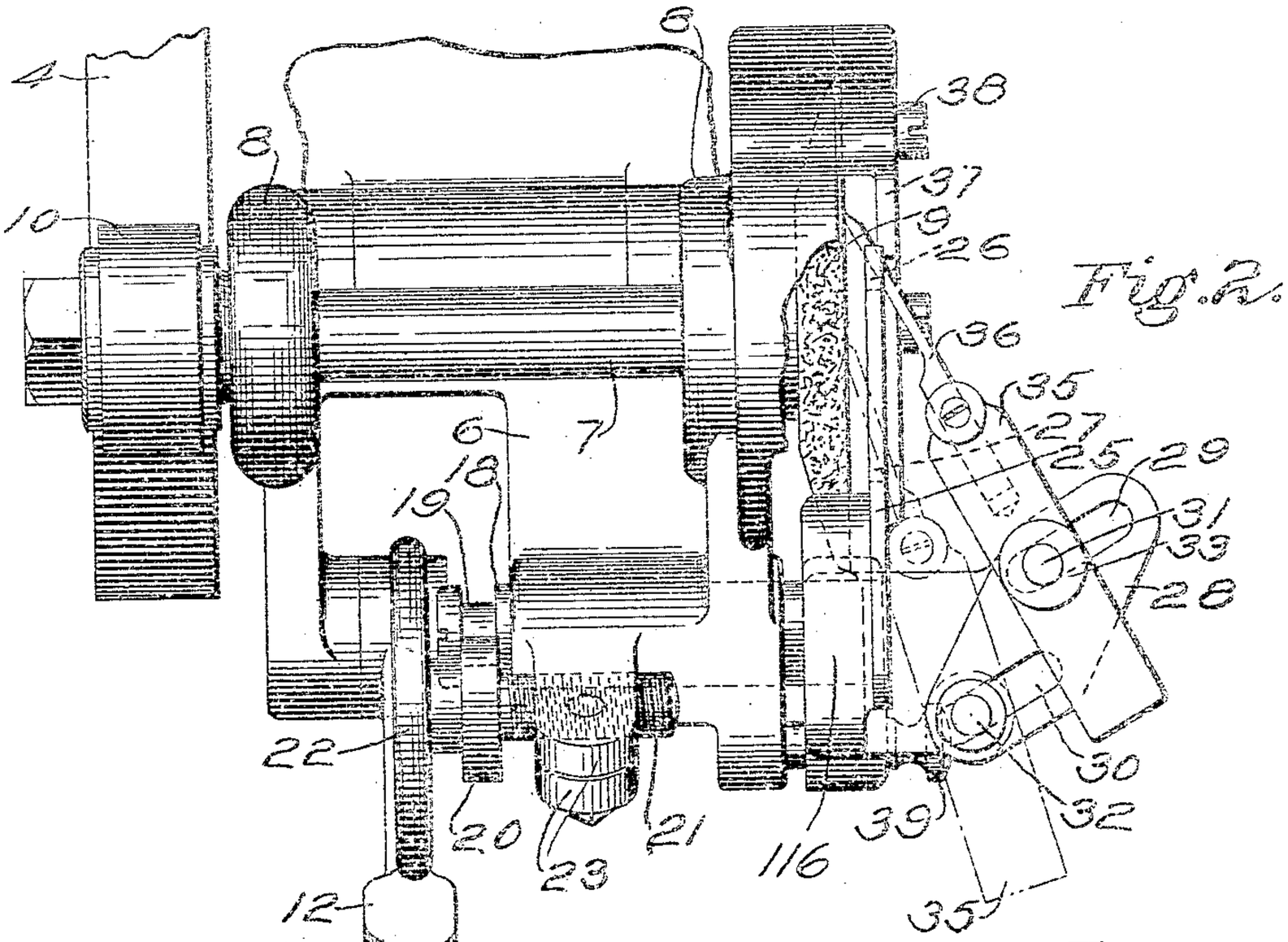


Fig. 2.



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UNITED STATES PATENT OFFICE.

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KNIFE GRINDING AND SHARPENING MACHINE.

958,032. Specification of Letters Patent. **Patented May 17, 1910.**

Application filed June 5, 1909. Serial No. 500,383.

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 and Sharpening Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

The invention to be hereinafter described relates to machines for grinding or sharpening knives, and more particularly for thus treating the knives used in cutting the wire used as fasteners in the manufacture of boots and shoes.

As well understood by those skilled in the art, the cutting edges of knives of the above general character are formed with differently inclined bevels on opposite sides of the knives, and the aims and purposes of the present invention are to provide a simple and efficient machine for grinding such differently beveled edges.

The above objects and others incident to the present invention will best be made clear by the following description and accompanying drawings of one form of means for carrying the invention into effect, the invention in its true scope being defined by the claims.

In the drawings: Figure 1 is a side view of a grinding machine or device embodying the present invention; and Fig. 2 is a front view thereof, some of the parts being broken away to better illustrate the constructions beyond.

As a means of supporting the grinding device in convenient position, the present invention contemplates attaching the same to the frame of the machine wherein the knives are employed, as, for instance, in the heel nailing or slugging machine.

In the drawings only so much of the machine and its frame is shown as necessary to illustrate the association of the present invention therewith, the frame 1 being of any usual character found in such machines and providing suitable bearings 2 for a driving shaft 3 on which is mounted a wheel or pulley 4 to rotate therewith.

Pivotally supported at 5 on the frame 1 is a bracket or frame 6 carrying a shaft 7 in suitable bearings 8, said shaft having secured to the end thereof a grinding disk 9 which may be of any usual or desired character, such as emery or the like.

Secured to the shaft 7 is a driving pulley 10, so disposed with respect to the pulley or wheel 4 that, when said frame 6 is moved upwardly about its pivotal support 5, the driving pulley 10 will contact with the wheel 4 and cause rotation of the shaft 7 and the grinding disk 9. For thus raising the driving pulley 10 into contact with the wheel 4, the frame 6 has mounted on the stud 11 a handle 12, the hub portion of which is provided with an eccentric or cam portion 13 which rests against the head of a stud 14 screw-threaded and adjustable in the frame 1, the construction being such that, upon depression of the handle 12, the cam portion 13 will ride upon the head of the stud 14 and turn the frame 6 about its pivot 5 to force the pulley 10 into driving contact with the wheel 4, as will be readily understood, a pin 15 limiting the movement of the handle 12 in either direction by engagement between the shoulders 16 and 17, as will be clearly apparent.

Mounted for longitudinal movement in the frame 6 is the work carrying spindle 18, Figs. 1 and 2, having a groove portion 19 adapted to engage a collar 20 carried by an adjusting screw 21 which is itself provided with the hand wheel 22, the construction being such that upon manipulation of the hand wheel 22 the adjusting screw, being screw-threaded in the lugs 23, will cause the work carrying spindle 18 to be moved longitudinally.

Secured by screws or bolts 24 to the outer portion of the frame 116 pivotally mounted on the spindle 18, Fig. 1, is a knife gage 25 having the upper and lower knife rests 26 and 27, said rests being preferably beveled, as indicated by dotted lines in Fig. 2. The bevels of the upper and lower knife rests are different and correspond to the different bevels to be given to the cutting edge of the knives, as will presently appear.

Extending from the frame 116 is a bracket 28 provided with the inclined slots 29 and 30. Adjustably mounted in the bracket 28 by means of the slots 29 and 30 are the two knife carriers 31 and 32, said knife carriers being formed as pins, as shown, and adjustably secured, each in its appropriate slot, by means of collars 33 secured to said pins

and the clamping nuts 34 screw-threaded to the ends of said pins, as will be readily understood.

As well known by those skilled in the art, the knives of a machine for cutting wire into fastenings to be driven into shoes are formed with beveled edges, the bevels on the opposite edges differing in their inclination, and that such knives are carried in knife holders, said holders and knives being removable from the machine together. In the present drawing one of these knives and its holder is shown in Fig. 2 and designated, as a whole, 35, and, in order to conveniently grind the knife while still retained by its holder, the holder is provided with an aperture for the passage of the knife carriers or pins 31 and 32, the knife 36, when the holder is thus supported by a knife carrier, resting upon one or the other of the beveled knife rests 26 or 27, as indicated in full and dotted lines, Fig. 2.

From the construction thus far described it will be apparent that, by adjusting the knife carriers or pins 31, 32 in their respective slots 29 and 30 of the bracket 28, and placing a knife holder thereon, with the knife 36 bearing against a knife rest 26 or 27, the extent of bevel given to the edge of the knife by the grinding wheel may be varied, and that, after grinding one beveled edge, the knife holder 35 may be transferred to the other pin or knife carrier and reversed in position so that the other beveled edge of the knife may be appropriately ground to the proper bevel.

In operation the knife carriers or pins 31, 32 are adjusted to suit the particular bevel given to the edges of the knives, and the knife holder is placed upon one of the knife carriers or pins 31, 32, with the knife 36 resting against one of the beveled knife rests 26 or 27, and the edge of the knife brought up to the grinding disk by manipulation of the hand wheel 22 in the manner hereinbefore described. After one edge of the knife has thus been beveled, the operator can remove the knife holder from the knife carrier or pin on which it was previously supported, reverse the knife and its holder and place it on the other pin and, by manipulation of the hand wheel 22, thus appropriately grind the other bevel of the knife edge.

A shield or guard 37 may be appropriately secured to the frame 6, as by screws 38, Fig. 1, to protect the grinding disk 9.

It is sometimes desirable that the bracket 28 and the knife carriers or pins 31 and 32 and the knife gage 25 be turned downward out of the way of the grinding disk 9, and to this end the frame carrying these parts is pivotally supported on the knife carrying spindle 18, a pin 39 passing through a downwardly extending arm 40 and into an appropriate socket in the frame 6, normally holding the parts in the position indicated in Fig. 1.

Upon withdrawal of the pin 39, it will be apparent that the parts mentioned may be turned downward substantially into the dotted line position, indicated by Fig. 1, and access be therefore had to the grinding disk either for its removal or for other purposes.

What is claimed is:

1. In a knife grinding and sharpening machine, the combination of a pivotally mounted frame, a shaft carrying a driving pulley and grinding disk, said shaft, pulley, and grinding disk being mounted on the pivoted frame, a driving wheel, means for supporting said driving wheel, means carried by said pivoted frame for supporting the knife to be ground, and a hand piece 12 for moving the said pivotally mounted frame about its pivot to carry the driving pulley into and out of engagement with the driving wheel.

2. In a knife grinding and sharpening machine, the combination of a driving shaft carrying a grinding disk, a knife gage having a plurality of knife rests, a plurality of knife carriers corresponding to said knife rests, and means for moving the knife gage and knife carriers toward and from the plane of the grinding disk.

3. In a knife grinding and sharpening machine, the combination of a driving shaft carrying a grinding disk, a knife gage having a plurality of knife rests, a bracket, a plurality of knife carrying spindles extending from said bracket transversely of said knife gage, means for adjusting the knife carrying spindles with relation to the knife rests, and means for moving the knife gage and knife carrying spindles toward and from the plane of the grinding disk.

4. In a knife grinding and sharpening machine, the combination of a driving shaft carrying a grinding disk, a movable knife gage extending in front of the grinding disk and having a plurality of knife rests, a knife carrier coöperating with each of said knife rests to determine the bevel to be given opposite edges of the knife, and means for moving the knife gage, its knife rests and cooperating knife carriers toward and from the plane of the grinding disk.

5. In a knife grinding and sharpening machine, the combination of a driving shaft carrying a grinding disk, a movable knife gage extending in front of the grinding disk and having a plurality of knife rests, a bracket movable with said knife gage and having a plurality of slots, knife carriers or spindles adjustable in said slots and cooperating one with each of said knife rests to grind different bevels on the opposite edges of the knife, and means to move the knife gage, knife rests, and knife carriers

toward and from the plane of the grinding disk.

6. In a knife grinding and sharpening machine, the combination of a pivotally mounted frame, a shaft carrying a driving pulley and grinding disk, said shaft, pulley, and grinding disk being mounted on the pivoted frame, a driving wheel, means for supporting said wheel, means for turning the pivotally mounted frame to place the driving pulley in driving connection with the driving wheel, and means carried by said pivotally mounted frame to determine the different inclination or bevel to be given opposite edges of the knife.

7. In a knife grinding and sharpening machine, the combination of a driving shaft and grinding disk, a knife gage having two knife rests, knife carrying spindles corresponding to the knife rests and coöperating each with one of said knife rests to give different bevels to opposite edges of the knife, and means for moving the knife rests and knife carrying spindles toward the plane of the grinding disk.

8. In a knife grinding and sharpening machine, the combination of a driving shaft and grinding disk, a knife gage 25 having the knife rests 26 and 27, the knife carrying spindles 31 and 32, the bracket 28 in which said spindles are adjustably mounted, a work carrying spindle 18, carrying said knife gage 25 and knife carrying spindles 31 and 32, and means for adjusting said shaft.

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

WILLIAM C. STEWART.

Witnesses:
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