O. ASHTON.

GRINDING MACHINE.

APPLICATION FILED JULY 6, 1908.

955,934.

Patented Apr. 26, 1910.

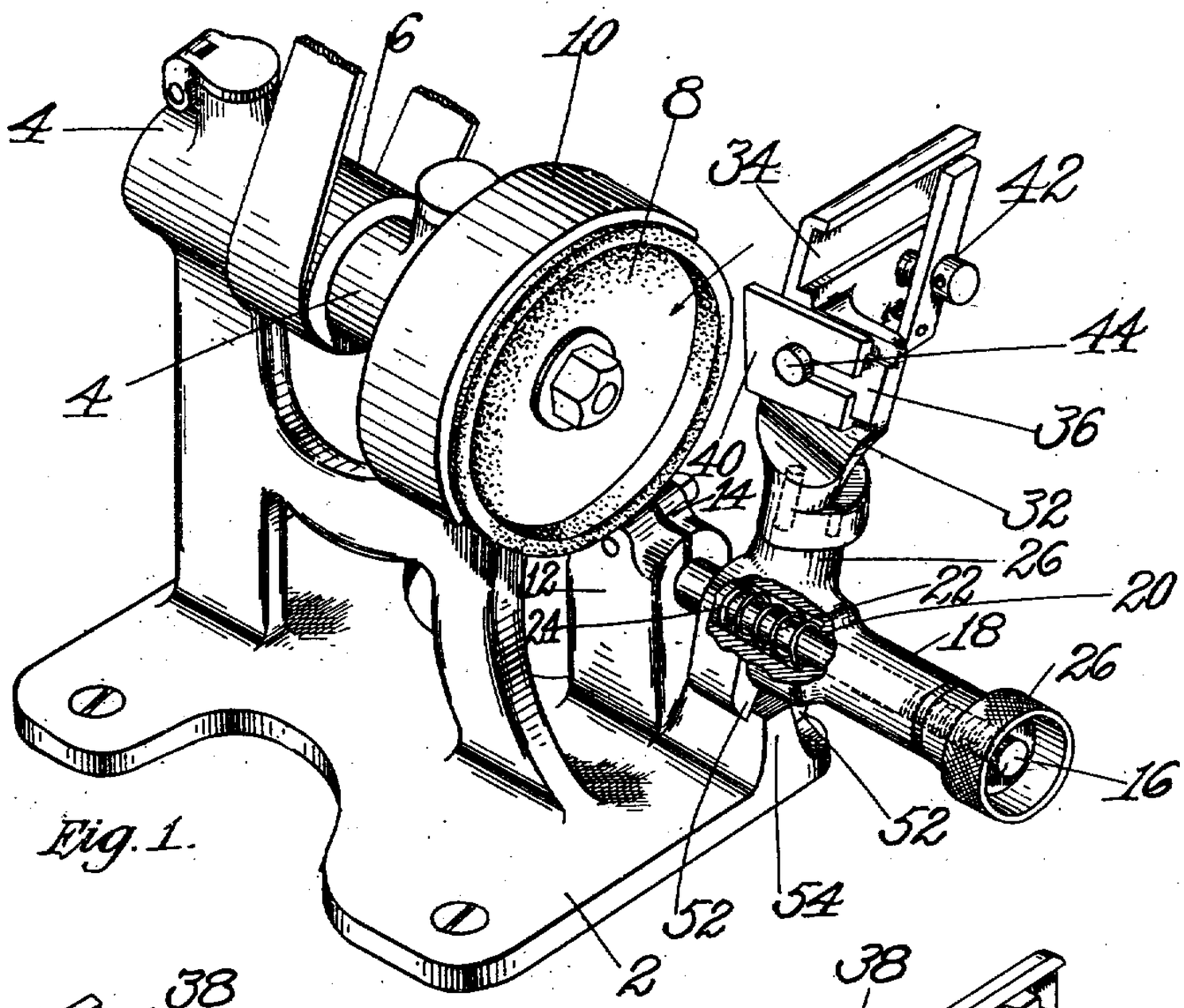

Fig. 1.

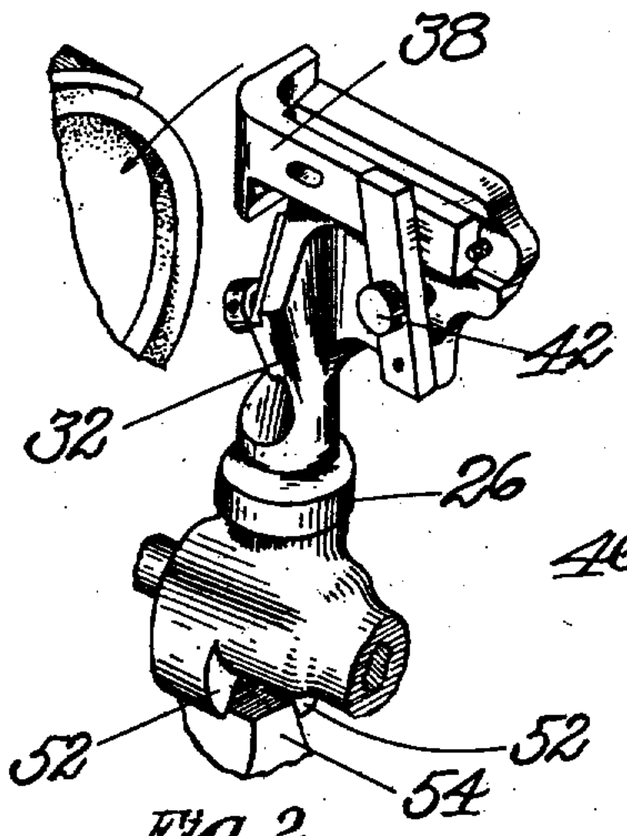

Fig. 2.

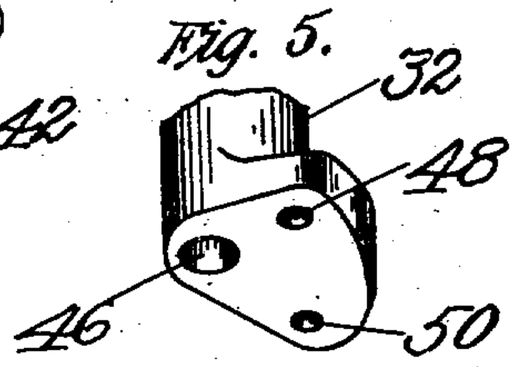

Fig. 5.

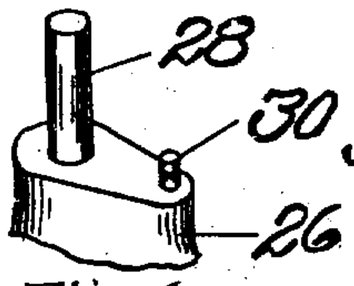

Fig. 4.

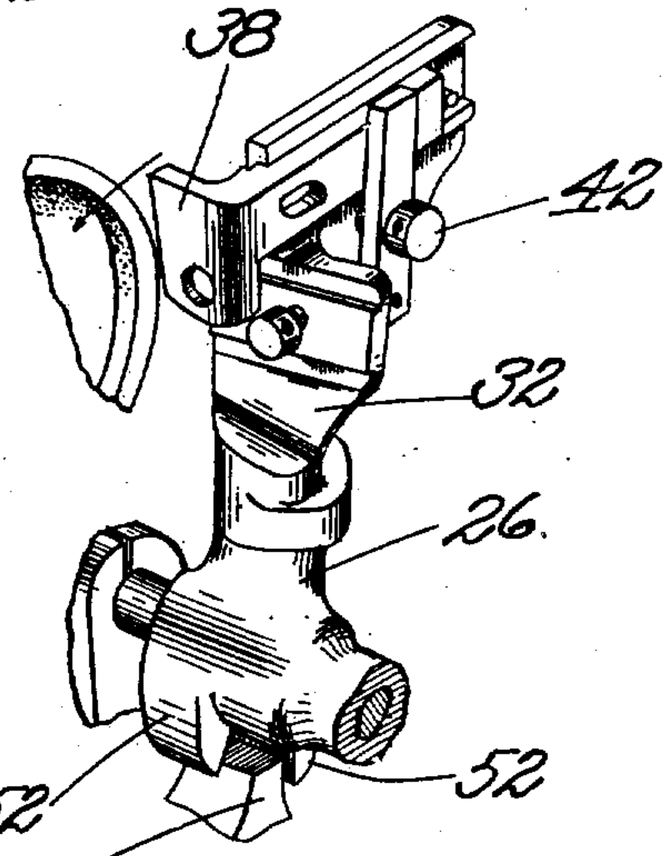

Fig. 3.

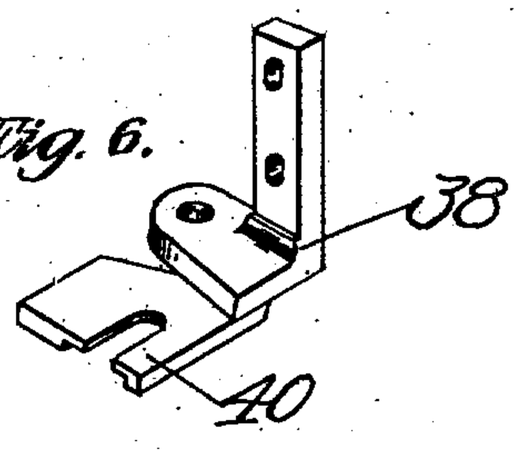

Fig. 6.

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INVENTOR.

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UNITED STATES PATENT OFFICE.

ORRELL ASHTON, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

GRINDING-MACHINE.

955,934. Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed July 6, 1908. Serial No. 442,099.

To all whom it may concern:

Be it known that I, ORRELL ASHTON, a citizen of the United States, residing at Lawrence, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Grinding-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for grinding tools and has for its object to provide a machine which is adapted to grind tools quickly and accurately.

In carrying out my invention, I employ a holder for the tool to be ground and a suitable grinding device. The holder and grinding device are mounted for relative movement, the holder being preferably movable and the grinding device stationary. The holder is movably sustained in proximity to the grinding device in such manner that different faces of a tool supported in the holder may be successively presented to the acting part of the grinding device at a predetermined angle thereto.

Other features of the invention will be hereinafter described in the specification and defined in the claims.

Referring to the drawings,—Figure 1 is a view in perspective of a machine embodying the present invention; Fig. 2 is a perspective view showing the holder in one position and with a knife positioned therein; Fig. 3 is a similar view showing the holder in a different position; Figs. 4 and 5 are detail views showing the construction employed for connecting the holder with its support; Fig. 6 is a view of the knives which the present machine is in particular adapted to grind.

The machine shown upon the drawings is adapted to grind knives, such as shown in Fig. 6 of the drawings, which have flat opposed faces in contact and are arranged to have a relative shearing movement in the cutting operation. It will however be understood that tools of different kinds may be ground in the present machine and that the invention is not limited to machines of the particular construction herein shown and described.

The present machine is provided with a suitable base 2 upon which are supported journals 4 which form bearings for a shaft carrying the pulley 6 and grinding wheel 8. A shield 10, which may be supported on one of the journals 4, is preferably provided for the grinding wheel. A standard 12 is mounted upon the base plate and is provided at its upper portion with a split clamping device 14 in which is detachably secured the inner end of a rod 16 which is preferably parallel with the axis of the grinding device. Mounted for sliding movement upon the rod 16 is a sleeve 18 which has the bore at its inner end enlarged to form a cylindrical chamber and a shoulder 20. A spring 22 mounted on the rod 16 is positioned within the chamber with its ends engaging respectively the said shoulder 20 and an enlargement 24 formed upon the inner end of the rod 16 and holds the sleeve in contact with a nut 26 which is screwed upon the outer end of the rod 16 and provided with a milled head.

Extending upwardly from the sleeve 18 and preferably integral therewith is a boss 26 provided with a flat part upon which is mounted an upwardly projecting pin 28 and a stud 30.

A tool holder 32 is provided with suitable surfaces to which the knives to be ground may be held in engagement by suitable clamps. In the present machine the holder has two flat surfaces 34 and 36, arranged at an angle with each other, to which the knives 38 and 40, as shown in Fig. 6, may be respectively held in engagement by clamps 42 and 44. The base of the holder 32 is flat and is provided with a cylindrical recess 46 to receive the pin 28 and is also provided with recesses, each adapted to receive the stud 30. The particular holder shown upon the drawings is provided with two recesses 48 and 50, and the arrangement is such that when the holder is mounted in operative position the pin 28 will engage the cylindrical recess 46 and serve as a pivot to support the holder for a rotatable movement, and the recesses 48 and 50 will be respectively positioned to receive the stud 30 at predetermined positions of the holder to lock the same from rotary movement. The recesses 48 and 50 are so positioned with relation to each other that the angular rotation of the holder between its two fixed positions is equal to the angular rotation necessary to turn the knife to be ground when

positioned in the holder with one face parallel to the grinding surface to a position in which the other face of the knife is parallel with the grinding surface. Two lugs 52 depend from the sleeve 18 and are each arranged to engage a stop 54 which is positioned between them upon the base plate and the arrangement of the parts is such that the sleeve may have a limited pivotal movement upon the rod 16.

In order to grind the knife 38, it is clamped in position upon the holder as shown in Fig. 2 and the nut 26 manipulated to bring the knife in engagement with the side face of the grinding device when one face of the knife may be evenly ground by swinging the holder transversely of the axis of the grinding device. In order to grind the other face of the knife the holder is lifted so that the recess 50 is free from engagement with the stud 30 and is then turned upon the pin 28 to the position shown in Fig. 3, when the recess 48 will engage the stud 30 to lock the holder in position. In this position of the holder, the other face of the knife will be parallel with the grinding surface and upon adjusting the nut 26 said face may be ground by swinging the holder across the face of the grinding surface. In order to grind the other knife 40, it is clamped upon the holder as shown in Fig. 1 and its edge ground by swinging the holder transversely across the face of the grinding device.

The provision of the stud and recesses forms a convenient and accurate means to lock the holder in its predetermined positions with relation to the grinding device, as it is only necessary in changing the holder from one position to another to merely raise it to free the stud from its engaging recess and turn it about the pivot 28 to its other operative position when the weight of the holder will cause the other recess to engage the stud and thus mechanically lock the holder in position. It will be observed as the holder is positively locked from movement in its predetermined positions that each face of the knife supported by the holder will always be presented to the grinding device at a predetermined angle, thus insuring a uniform bevel to the edges of the knife. By providing a number of holders with recesses arranged at different distances from each other, knives having different bevels may be ground upon the same machine.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A grinding machine, having in combination, a rotary grinding wheel, a rod parallel with the axis of the wheel, a sleeve mounted for sliding and pivotal movement upon the rod, a tool holder pivotally mounted upon said sleeve in proximity to the side face of said grinding device, means for locking said holder in adjusted position upon said sleeve having its parts constructed and arranged to position the holder in predetermined relation to the side face of the grinding wheel, resilient means tending to move the sleeve and holder away from the grinding wheel and means under the control of the operator for pressing a tool carried by the holder against the grinding wheel in opposition to the resistance of said resilient means.

2. A grinding machine, having in combination, a rotary grinding wheel, a rod parallel with the axis of said wheel, a sleeve mounted for sliding and turning movement upon the rod, a tool holder adjustably supported for rotatable movement upon said sleeve in proximity to the side face of the grinding wheel whereby a tool carried by the holder may be swung across the face of the grinding device and means for limiting the extent of said swinging movement in opposite directions respectively.

3. The combination with a grinding device, of a support mounted for movement to and from said device, a tool holder relatively mounted upon said support, and means for locking the holder in predetermined positions constructed to be rendered ineffective by longitudinal movement of said holder.

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

ORRELL ASHTON.

Witnesses:

ALLAN H. BARROWS,

ELIZABETH C. COUPE.

Certificate of Correction in Letters Patent No. 955,934.

It is hereby certified that in Letters Patent No. 955,934, granted April 26, 1910, upon the application of Orrell Ashton, of Lawrence, Massachusetts, for an improvement in "Grinding-Machines," an error appears in the printed specification requiring correction as follows: Page 2, line 93, the word "relatively" should read *rotatably;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 14th day of June, A. D., 1910.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.

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