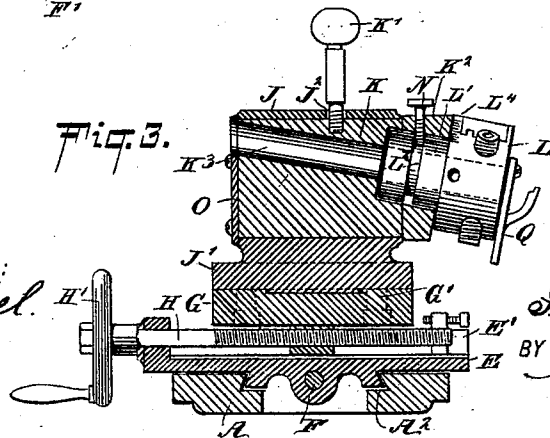
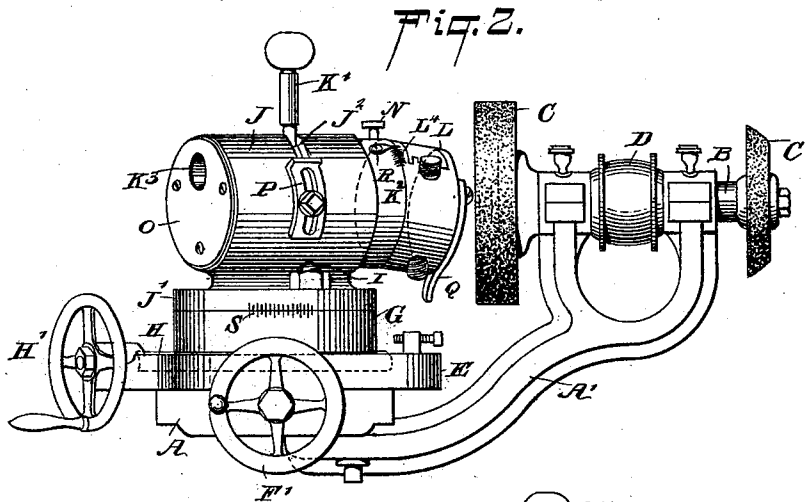
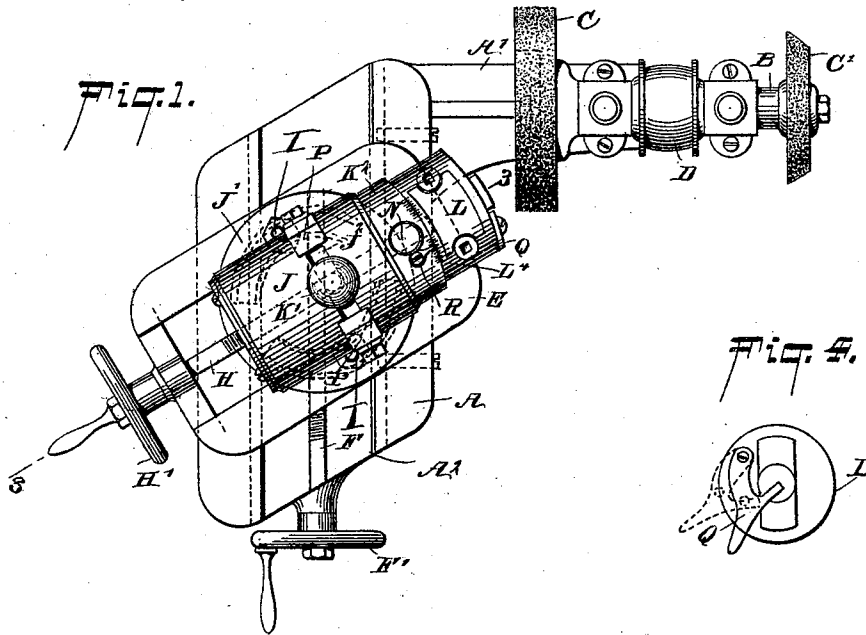


(No Model.)

I. H. GILMAN.
TOOL GRINDER.

No. 512,545.

Patented Jan. 9, 1894.



WITNESSES:
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ISAAC H. GILMAN, OF BELOIT, WISCONSIN.

TOOL-GRINDER.

SPECIFICATION forming part of Letters Patent No. 512,545, dated January 9, 1894.

Application filed June 6, 1893. Serial No. 476,744. (No model.)

To all whom it may concern:

Be it known that I, ISAAC H. GILMAN, of Beloit, in the county of Rock and State of Wisconsin, have invented a new and Improved Tool-Grinder, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved tool grinder, which is simple and durable in construction, very effective in operation, and more especially designed to accurately grind drills and similar tools to any angle, at the same time giving the desired clearance.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional side elevation of part of the same on the line 3—3 of Fig. 1; and Fig. 4 is a face view of the chuck.

The improved tool grinder is provided with a suitable base plate A, from the rear end of which extends sidewise an arm A', in which is journaled the longitudinally extending main shaft B, carrying at its forward end a grinding wheel C, made of emery or other suitable material, and on the face of which the tool is ground to the desired shape. On the other end of the shaft B is arranged a beveled grinding wheel C' for grinding points of drills when they become thick. On the shaft B is also secured a pulley D connected by a belt with suitable machinery for imparting a rotary motion to the said shaft B and the grinding wheels C and C' thereon.

On the top of the bed plate A is formed a suitable transversely-extending guideway A², in which is fitted to slide the angularly-arranged bed plate E, by means of a screw F, screwing in the bed plate E and mounted to turn in the bed plate A, as will be readily understood by reference to the drawings, the front end of the said screw F being provided with the usual hand wheel F', which, when turned, causes the bed plate E to slide transversely.

On the bed plate E is arranged a guideway E' at angles to the guideway A² and also at angles to the shaft B, the said guideway being engaged by a block G fitted to slide in the said guideway by means of a screw H engaging a nut on the block, see Fig. 3, and mounted to turn in the bed plate E. On the end of this screw H is secured the usual hand wheel H' under the control of the operator, for adjusting the said block G nearer to or farther from the grinding wheel C, as will be readily understood by reference to the drawings.

In the block G are arranged segmental slots G' shown by dotted lines Figs. 1 and 3, engaged by bolts I passing through a base J' mounted on top of the block G and adapted to be secured thereon by the said bolts I. The base J' supports, on its top, a cylinder J standing in alignment with the guideway E' of the bed plate E, and in which the chuck holder K is mounted to turn by means of a handle K' projecting from the top of the holder through a transversely-extending slot J² formed in the said cylinder.

The head K² of the chuck holder K extends on one outer end of the cylinder J and is adapted to receive the shank L' of the chuck L of any approved construction, the inner face of the chuck fitting against a beveled face of the head K², the shank L' being inclined to the axial line of the cylindrical chuck holder K, as will be readily understood by reference to Fig. 3. In the shank L' is arranged a groove L² engaged by a set screw N screwing in the head K² of the holder K to secure the chuck L in position in the holder.

In order to accommodate the tool to be ground, the central aperture of the chuck L is in alignment with an aperture K³ formed angularly in the chuck holder K and extending through a cap plate O secured on the left hand end of the cylinder J. On the front face of the chuck L is arranged a finger piece Q, which serves to start all tools at the same point and at the proper position relative to the face of the grinding wheel C. This finger piece Q is attached by a screw to the chuck L, and is provided with a dowel adapted to engage in an aperture or recess in the chuck L for securely holding the finger piece

in place. By pressing the finger piece outward the dowel is disengaged from its aperture to permit of then swinging the finger piece to one side (see dotted lines Fig. 4) for

5 introducing or removing the tool.

In the transversely-extending slot J^2 of the cylinder J are held adjustably the stops P to limit the swinging motion of the handle K' , according to the desired turn to be given to the chuck L while grinding the tool held in the chuck.

On the head K^2 of the holder K is secured a pointer R adapted to indicate on two sets of graduations L^1 formed on the periphery of the chuck L, as is plainly illustrated in Figs. 1 and 2. A graduation S is also arranged on the block G to indicate the position of the base J' relative to the said block. Now, it will be seen that by the arrangement described the base plate E can be adjusted transversely so as to bring the tool held in the chuck L to any desired point on the grinding wheel C, and by adjusting the block G carrying the cylinder J, the chuck holder K and the chuck L, the tool held in the latter can be moved toward or from the face of the chuck L on the beveled face of the head K^2 of the chuck holder K, any desired clearance being given to the cutting edge of the tool, the said clearance being indicated by the pointer R on the graduation L^1 . It will further be seen that by the operator being enabled to turn the holder K to the right and left in the cylinder J, a perfect edge is ground on both wings or lips of the tool held in the chuck. Now, when one lip of the drill is ground then the operator loosens the chuck and a half turn is given to the latter by the operator moving the handle K' . The pointer then indicates on the other graduation of the set of graduations L^1 , the exact half turn position. The chuck is then again fastened in place and the other lip of the drill is ground. By this arrangement removal of the drill from the chuck is completely avoided until the drill is finished.

The adjustable stops P are used to gage the amount ground off the drill, as some drills are worn more than others and hence the stop is moved to proper position and left in this position until both lips of the drill are ground. By this arrangement the same amount of material is ground off on both lips of the drill.

When the finger piece Q is in proper position as shown in full lines in Fig. 4, the drill is moved up to it until the lip rests on a shoulder formed on the central prong of the finger piece as illustrated in Fig. 3, the shoulder serving as starting point for the drill.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a tool grinder of the class hereinbefore specified, the combination, with a chuck-holder having a beveled face and a bore inclined to its axis, of a chuck, or tool-holder, whose shank is arranged in such bore as and for the purpose specified.

2. In a tool-grinder of the class hereinbefore described, the combination, with the chuck, L, of the spring finger-piece, Q, pivoted to the face of said chuck and provided with a dowel adapted to enter a recess in the chuck, whereby the finger-piece serves as a stop for the lip of a drill and may be removed out of the way during the grinding, as shown and described.

3. In a tool grinder of the class hereinbefore described, the combination, with the chuck holder, K, having the angular bore and a beveled face, of the chuck, L, fitted in said bore and against said face, and provided with graduations on its periphery, a pointer fixed on said chuck-holder adjacent to the graduations, and a handle, attached to the chuck-holder, for rotating it and reversing the drill, as specified.

ISAAC H. GILMAN.

Witnesses:

ARTHUR H. GOSS,
CHARLES H. PRATT.