

No. 639,636.

Patented Dec. 19, 1899.

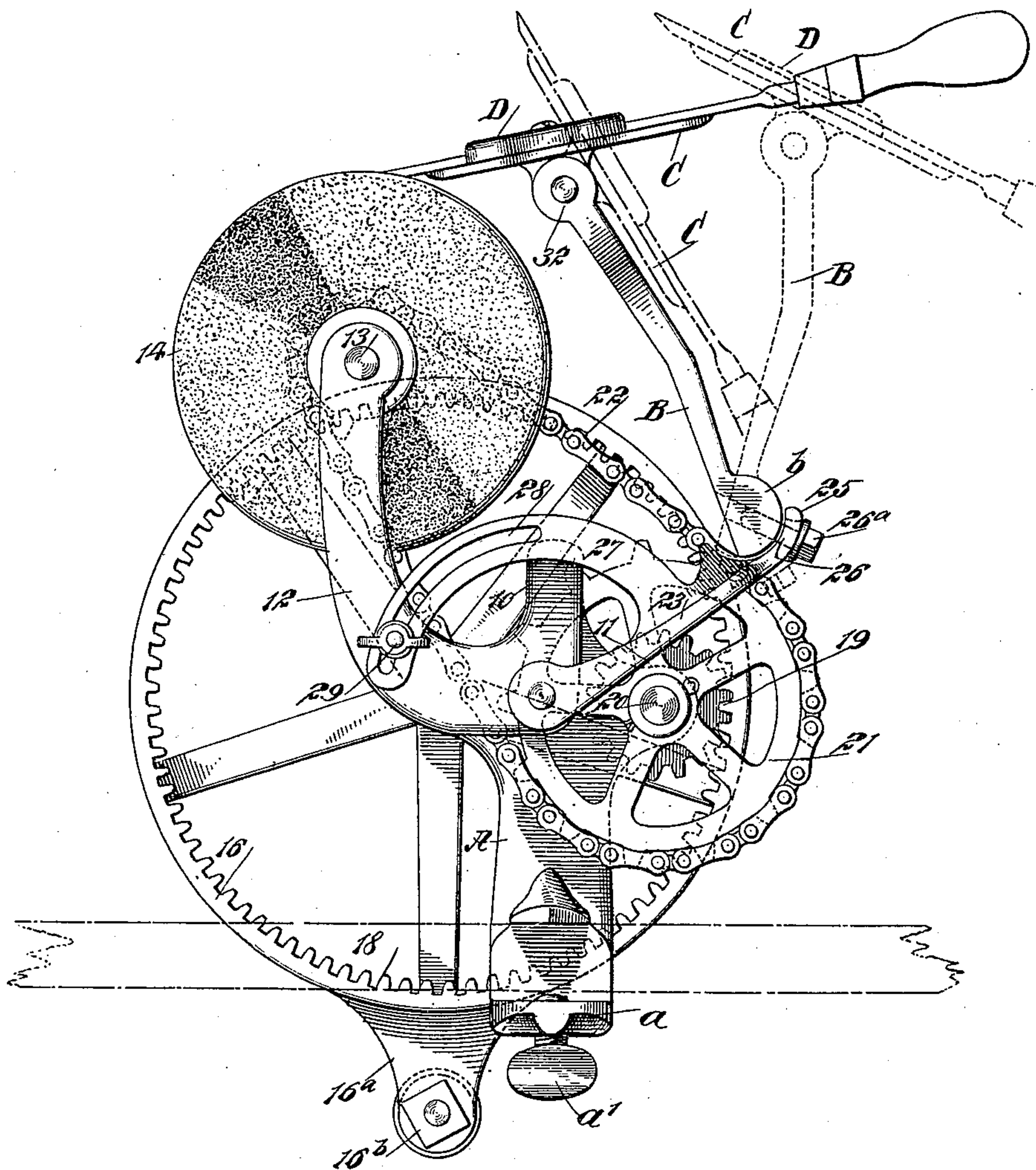
A. VAN DILLENBECK.
MACHINE FOR GRINDING TOOLS.

(Application filed June 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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2 Sheets—Sheet 2.

Fig. 3.

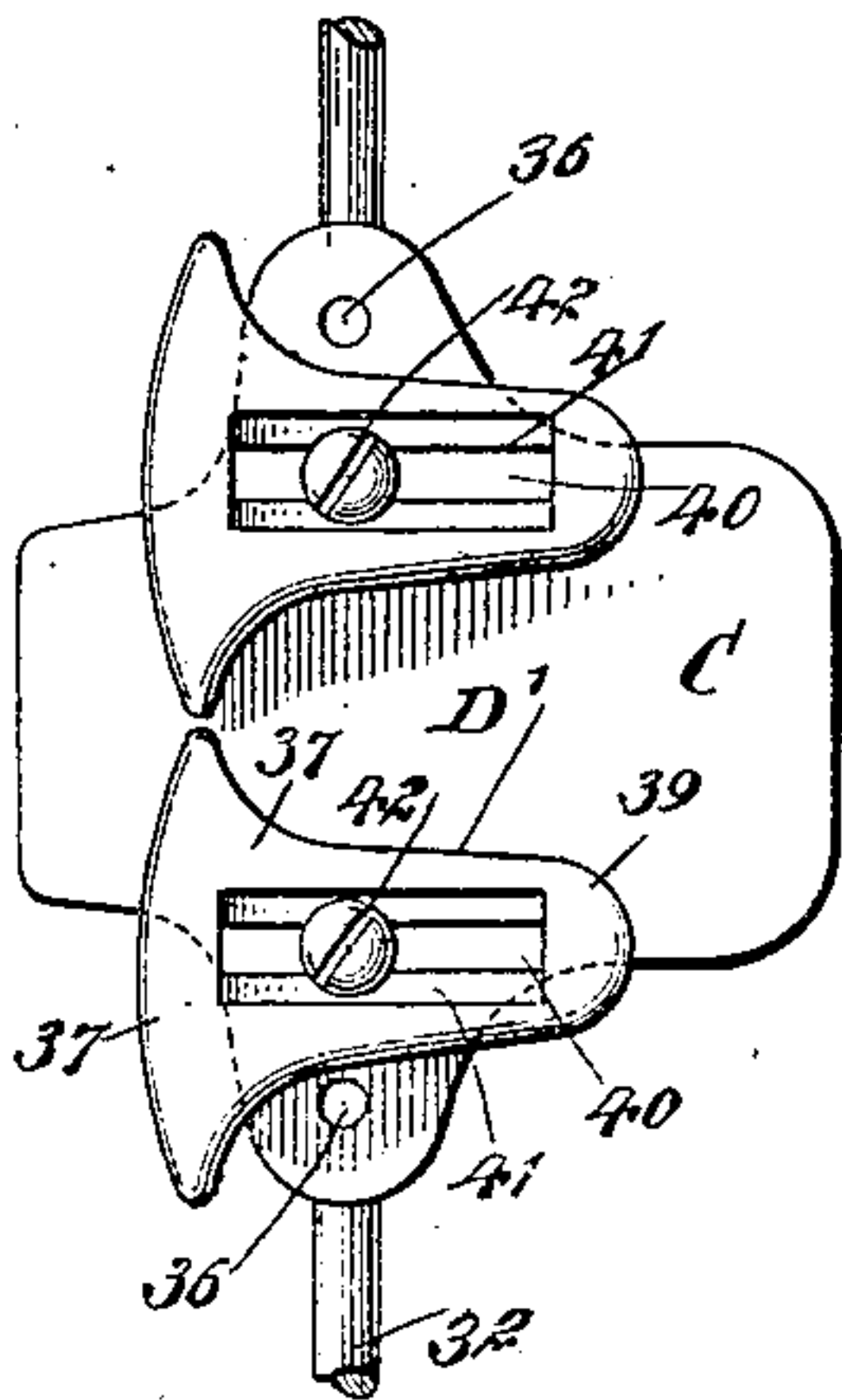


Fig. 4.

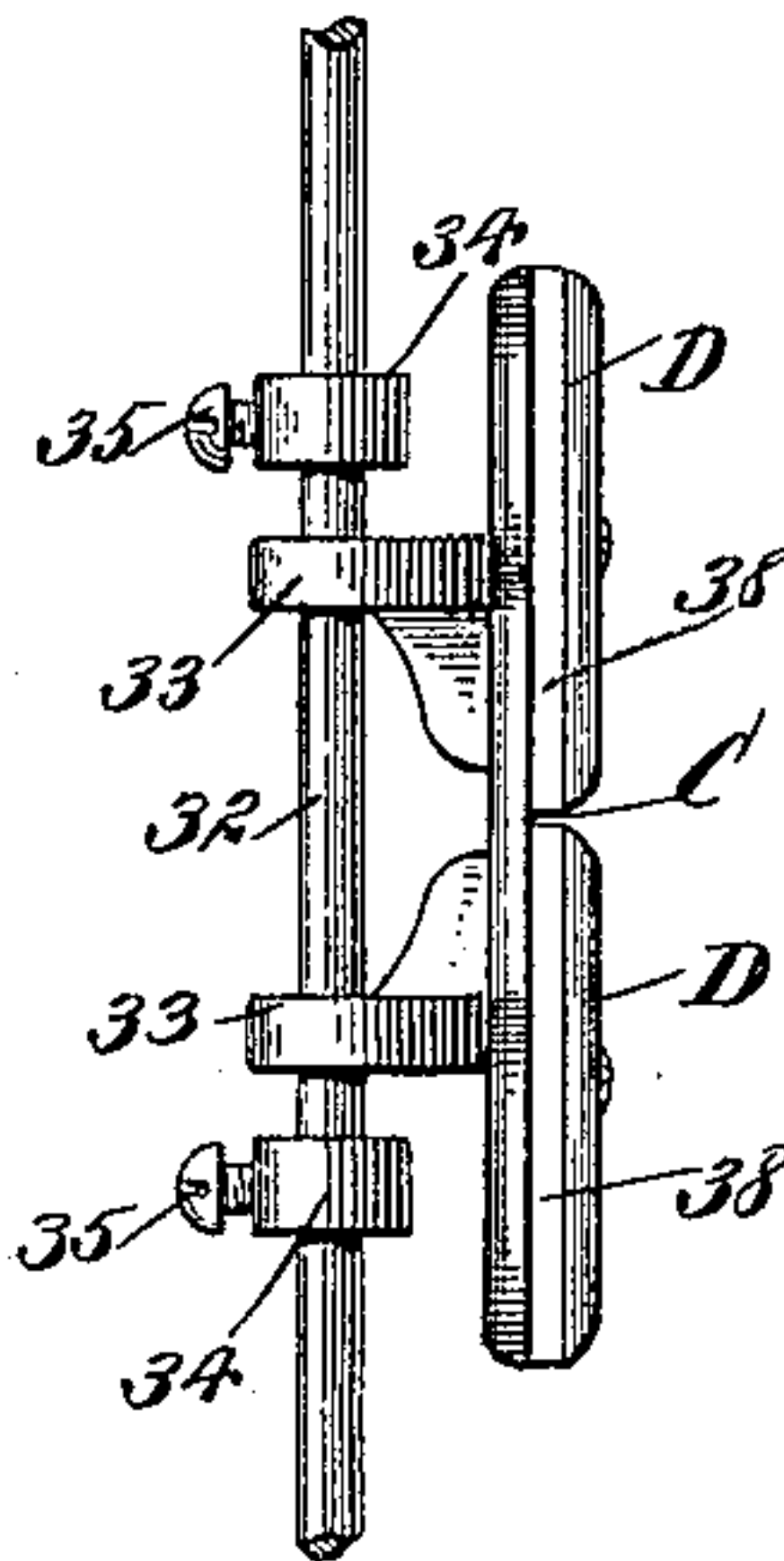


Fig. 2.

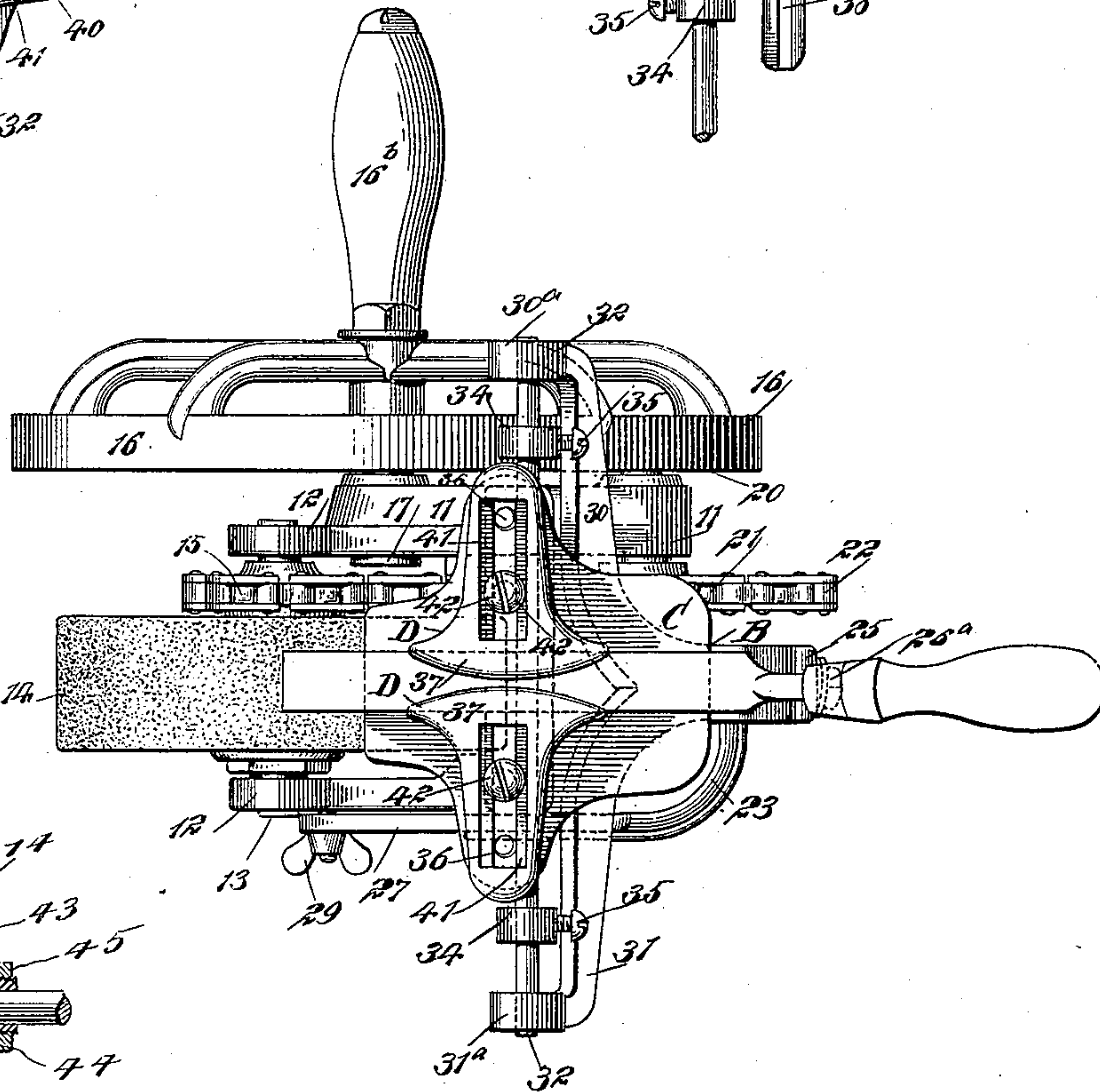
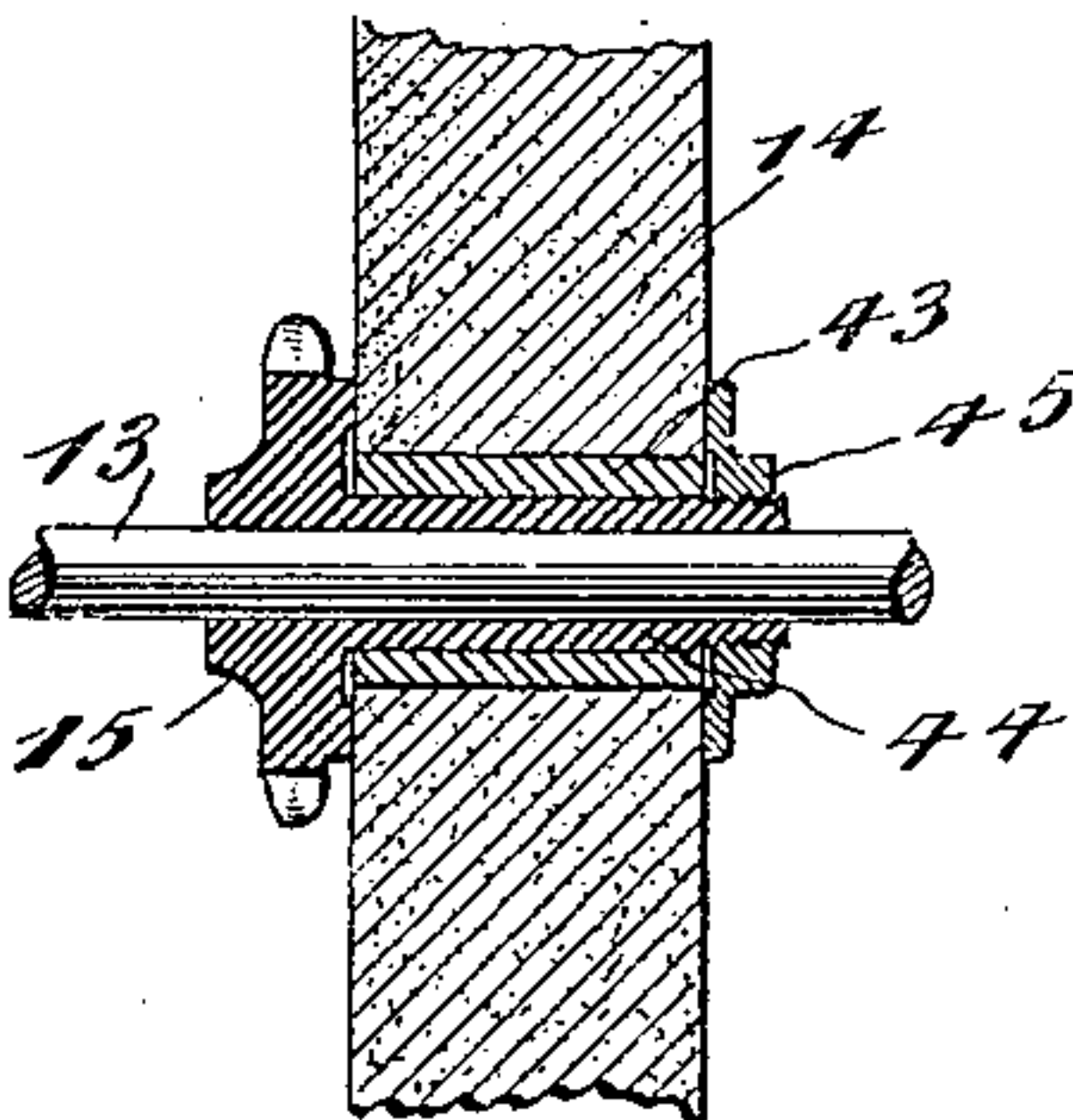


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR GRINDING TOOLS.

SPECIFICATION forming part of Letters Patent No. 639,636, dated December 19, 1899.

Application filed June 30, 1899. Serial No. 722,414. (No model.)

To all whom it may concern:

Be it known that I, ARIE VAN DILLENBECK, of Albany, in the county of Albany and State of New York, have invented a new and Improved Machine for Grinding Tools, of which the following is a full, clear, and exact description.

The object of my invention is to provide a machine adapted for grinding tools of various descriptions and in which the table adapted to support the tools is capable of movement to and from the grindstone and likewise movement across the stone, and, further, whereby the movement of the table parallel with the axis of the stone may be so controlled or limited that the tool will not leave the stone during the operation of grinding.

A further object of the invention is to provide a means for vertically adjusting the table, so that it may be raised and lowered to accommodate any tool to the stone, and also to provide means for laterally adjusting the table to and from the periphery of the stone, and thus regulate the length of beveled surface to be given the edge of the tool.

Another object of the invention is to construct a machine for grinding tools capable of being driven with one hand by the person grinding a tool, and so that with the other hand the person can effectually, accurately, and conveniently present the tool to the grindstone and keep it in engagement therewith as long as necessary.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a side elevation of the improved machine. Fig. 2 is a plan view thereof. Fig. 3 is a detail plan view of the tool-supporting table, illustrating the clamps therefor in a different position than shown in Fig. 2. Fig. 4 is an edge view of the tool-holding table, and Fig. 5 is a section through the eye portion of the grindstone and bearing for the same.

The frame of the machine consists of a standard A, provided at its base with a clamp

a, having the usual set-screw *a'*, whereby the standard may be secured to a shelf, table, or the like. An arch 10 is formed at the upper portion of the standard A, and where the arch connects with said standard, at the right-hand face of the standard, a horizontal rearwardly-extending arm 11 is formed, and upwardly and forwardly-extending arms 12 are carried from the left-hand end of the arch 10 and from the point where the said arch connects with the said standard A, the two upwardly-extending arms 12 constituting forks, in the upper end portions of which a shaft 13 is secured, and on this shaft the grindstone 14 is mounted to revolve, said grindstone being provided with a sprocket-pinion 15, attached to a bearing for the stone, mounted to turn upon the shaft 13, and to be hereinafter described.

A driving-wheel 16 is mounted to turn on a shaft 17, secured in the horizontal arm 11 of the frame at the base of the right-hand fork. Said driving-wheel 16 is provided with an internal gear 18 and with a projection 16^a from its periphery, to which projection 16^a a handle 16^b is attached.

A pinion 19 is secured on a shaft 20, which shaft is journaled at the outer end of the arm 11 of the standard A, and on this shaft 20 a sprocket-wheel 21 is secured, connected by a chain belt 22 with the sprocket-pinion 15, attached to the grindstone 14. Thus it will be observed that the bearing for the driving-wheel is at one side of the arch and standard, and the bearing for the shaft 20, carrying the sprocket-wheel 21, is at the opposite side of said arch and standard, and by this means the weight of the driving mechanism is about equalized at each side of the standard A.

A bar 23, adapted for the vertical adjustment of the tool-supporting table C, to be hereinafter described, is pivoted at one end where the left-hand arm 12 of the stone-supporting fork connects with the arched end, and said adjusting-bar 23 extends upward and rearward and is curved at its upper rear end to a point at the rear of the grindstone 14. At the upper end of the adjusting-bar 23 a shoe 25 is located, and this shoe is at an angle, preferably a right angle, to the adjusting-bar 23, and its inner face is concaved and its outer face convexed. The shoe 25 is pro-

vided with a longitudinal slot 26, as shown in dotted lines in Fig. 1. The adjusting-bar 23 is held in its adjusted position by connecting with said bar 23 a forwardly and downwardly curved guide-arm 27, having a slot 28 made therein, through which a set-screw 29 is passed into the left-hand arm 12 or left-hand support for the grindstone 14, as is shown in Figs. 1 and 2.

10 In connection with the adjusting-bar 23 an adjusting-arm B is employed, which arm is adapted to give lateral adjustment to the table C, above referred to, or to the support for said table. The adjusting-arm B is provided at its lower end with a foot *b*, having a cylindrical rear edge adapted to fit and turn in the shoe 25, and the arm B is held in adjusted position by a set-screw 26^a, passed through the slot 26 in the shoe and into a suitable aperture in the foot *b*. The upper end of the adjusting-arm B is bifurcated, forming two substantially horizontal members 30 and 31, extending, respectively, in direction of the right and left hand sides of the machine. The member 30 of the adjusting-arm B is provided with an upward extension 30^a, and the member 31 with a corresponding extension 31^a. A shaft 32 is fixed in the extensions 30^a and 31^a, and upon this fixed shaft the table C, adapted to carry the tool to be ground, is pivoted. To that end lugs 33 are formed upon the bottom of the table, which lugs are loosely mounted on the shaft 32, as shown in Fig. 4. Collars 34 are loosely mounted on the fixed shaft 32, each collar being provided with a set-screw 35, whereby it may be tightened on the shaft. The collars are located outside of the lugs 33 of the table C, and when said collars are fixed on the shaft they limit the lateral movement of the table C on the said shaft 32, since in operation the table is laterally reciprocated on the shaft 32 so as to carry the edge of the tool to be sharpened transversely of the peripheral surface of the grindstone.

45 When the shoe 25 of the adjusting-bar 23 is moved upward or downward, it causes the table C to be raised or lowered to accommodate a tool that is thick or thin, and when the adjusting-arm B is moved to or from the grindstone more or less of the edge of the tool may be brought to bear upon the grinding-surface of the stone, and thus a greater or a lesser bevel will be given to the cutting edge of the tool.

55 Two clamps D are preferably used in connection with the table C, which clamps comprise a practically wide body 37, having an undercut 38 and a shank 39, in which a slot 40 is longitudinally produced, and adjacent to each side edge of each slot 40 a shoulder 41 is produced in the shank of each clamp D. These shoulders receive the heads of screws 42, that are passed through the slots 40 of the clamps for the purpose of holding such clamps to the table C, and each screw 42 may be made to enter either one of two or more apertures 36, provided at each side of the table C.

These clamps may be brought quite close together or may be moved quite far apart, according to the character of the tool to be ground. When the clamps are placed transversely of the table, as shown in Fig. 2, they are in position to properly hold a chisel to be ground, the chisel being made to engage with the undercut surfaces 38 of the body portions of the clamp. When a tool like a spokeshave or draw-knife is to be ground, the clamps are placed longitudinally of the table, as shown in Fig. 3. After a proper adjustment of the table has been made the stone is revolved through the medium of the master-wheel 16 and connected gear. When the stone has acquired the proper degree of speed, the operator will bear down upon the table, pressing the cutting edge of the tool against the periphery of the stone 14, at the same time sliding the table back and forth on its supporting rod or shaft 32, and if the collars 34 have been properly set the tool will not leave the stone during the sliding movement of the table. As soon as the hand is removed from the table the weight of the handle of the tool will cause the table to assume a slanting position or a position practically parallel with and at the back of the adjusting-arm B, as shown in dotted lines in Fig. 1, in which figure the adjusting-arm B is shown in dotted lines as being carried sufficiently far from the stone to prevent the tool accidentally engaging therewith, so that the tool may be set, if desired.

In Fig. 5 I have shown the preferred manner of mounting the grindstone 14 upon the shaft 13. The eye of the stone is provided with a soft-metal bushing 43, and a hard-metal sleeve 44 is placed within the bushing. The bushing is provided with a thread at one end adapted to take a nut 45, and the sprocket-pinion 15 constitutes a head for the opposite end of the sleeve. This bushing and sleeve may be removed from a worn-out stone and placed in position upon a new one and form an effective bearing. The shaft 13 is driven through suitable apertures in the arms 12 and through the sleeve 44. When the stone is in position, the hub of the pinion 15 will be close to one arm 12 and the nut 45 will be close to the opposing arm 12. Thus by driving the shaft 13 from the frame the stone 14 and its bearing can be readily removed.

It will be understood that other forms of locking device than that illustrated may be employed between the shoe 25 and the foot *b*—as, for instance, these parts may be in the shape of ribbed disks arranged to interlock and be held in interlocking engagement by a set-screw.

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

1. In a machine for grinding tools, the combination of a pivoted bar, means for adjusting the said bar to raise or lower its outer end, an arm having its lower end adjustably se-

cured to the outer end of the bar, and a pivoted table on the upper end of the said arm, and mounted to slide transversely of the stone, substantially as described.

5 2. In a machine for grinding tools, the combination of a pivoted bar, means for adjusting said bar to raise or lower its outer end, an arm having its lower end adjustably secured to the outer end of the bar and its upper end
10 forked and carrying a shaft, and a table pivotally and slidably mounted on the said shaft, substantially as described.

3. In a machine for grinding tools, the combination of a pivoted bar having a shoe at its
15 outer end and provided with a forwardly-projecting slotted arm, a set-screw for binding the arm in position, an arm having its upper end forked and provided with a foot at its lower end adjustably secured to the shoe of the
20 bar, a shaft mounted in the forks of the arm, and a table provided on its under side with apertured lugs through which the said shaft loosely passes, substantially as described.

4. In a machine for grinding tools, the combination with a support, and a stone mounted therein, of a sprocket-wheel on the shaft of the stone, a shaft provided with a pinion and sprocket-wheel, a chain passing over the said sprocket-wheels, and a driving-wheel provided with an internal gear meshing with the
30 said pinion, substantially as described.

5. In a machine for grinding tools, the combination with a table, of clamps having their

bodies undercut and provided with slotted shanks, and screws passing through the slots
35 of the clamps into the table, substantially as described.

6. In a machine for grinding tools, the combination, with a base, a stone carried by the base, and means for revolving the stone, of
40 a support capable of vertical adjustment on the base, a locking device for said support, a lateral adjusting-arm carried by said support, a table provided with means for holding a tool, having sliding and pivoted movement
45 upon the said support, and means for controlling the sliding movement of the table, as described.

7. In a machine for grinding tools, the combination of a standard having an arch at its
50 upper end and provided with a rearwardly-extending horizontal arm at one side and with forwardly and upwardly projecting arms on the other side, a stone mounted in the forwardly-projecting arms, a driving-wheel
55 mounted in the horizontal arm at the base of the fork, a shaft journaled in the outer end of the horizontal arm, a pinion on the shaft and meshing with the driving-wheel, and gearing between the shaft of the pinion and
60 the shaft of the stone, substantially as described.

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Witnesses:

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