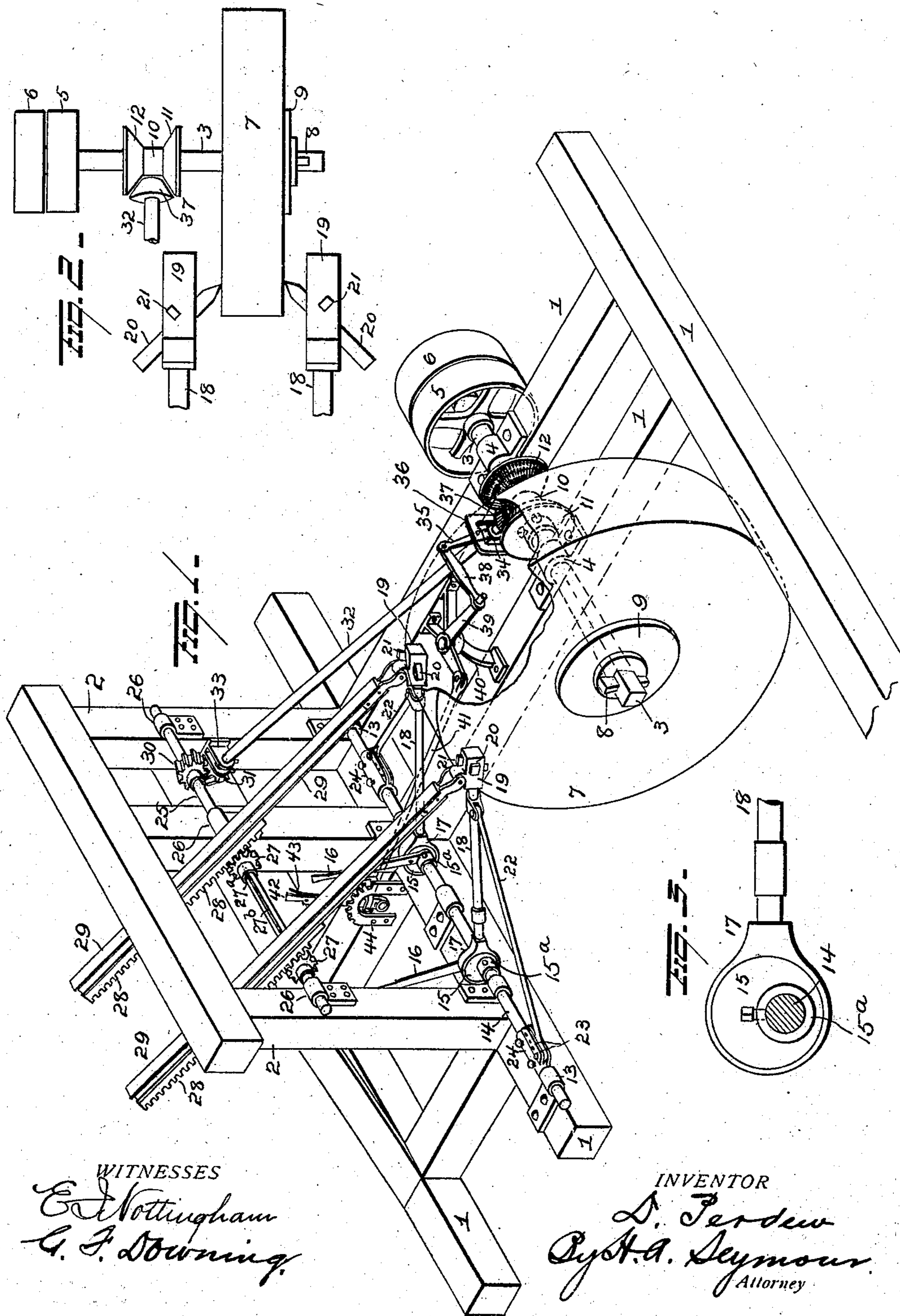


No. 815,034.

PATENTED MAR. 13, 1906.

D. PERDEW.  
GRINDSTONE TURNING APPARATUS.

APPLICATION FILED MAR. 22, 1905.



WITNESSES

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# UNITED STATES PATENT OFFICE.

DOUGLAS PERDEW, OF CONSTITUTION, OHIO.

## GRINDSTONE-TURNING APPARATUS.

No. 815,034.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed March 22, 1905. Serial No. 251,532.

*To all whom it may concern:*

Be it known that I, DOUGLAS PERDEW, a resident of Constitution, in the county of Washington and State of Ohio, have invented certain new and useful Improvements in Grindstone-Turning Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in grindstone-turning machines, the object of the invention being to provide improved means for holding and guiding the cutting-bits, all of said mechanism being under the complete control of the operator at all times.

A further object is to provide improved mechanism for automatically feeding the bits to the stone as the latter is turned.

With these and other objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully herein-after described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a machine embodying my improvements, and Figs. 2 and 3 are views of details of construction.

1 represents a supporting-frame comprising longitudinal and cross timbers arranged, for example, as shown and having an upright frame 2, supported on the intermediate cross-timber.

3 represents a drive-shaft supported in bearings 4 on the forward portion of frame 1 and carrying tight and loose pulleys 5 and 6 for the adjustment of the driving-belt to drive the shaft or turn pulley 6 without driving the same. This shaft 3 is made angular on one end to receive the stone 7, to be turned and has a slot therein for the reception of a wedge-shaped key 8 to firmly hold a collar 9 against the stone and compensate for various thicknesses of stone. A sleeve 10 is secured on shaft 3 and is provided at its ends with facing beveled friction-gears 11 and 12 for a purpose which will hereinafter appear.

In bearings 13 on the intermediate cross-timber of frame 1 a rod or shaft 14 is mounted, and two eccentrics 15 are mounted to turn on the rod or shaft 14 and have levers 16 secured thereto to control their movement. These eccentrics are normally prevented from lateral displacement by collars 15<sup>a</sup>, adjustably secured to the shaft. Straps or

bands 17 are around these eccentrics 15 and have arms 18 secured thereto. These arms 18 are provided at their outer ends with blocks 19, made with lateral and vertical openings to receive cutting-bits 20 and locking-keys 21 and are adapted to present the bits 20 to the opposite edges of the stone to grind the same. The arms 18 and cutters carried thereby can be adjusted laterally to accommodate them to the particular stone to be turned by loosening the collars 15<sup>a</sup> and moving the eccentrics laterally on the shaft 14.

Lateral strengthening and adjusting brace-rods 22 are pivotally connected at one end to the arms 18 near the outer ends of the latter, and the inner ends of said brace-rods are made with openings and rest between parallel flanges 23 on sleeves 24, secured to rod or shaft 14. These flanges 23 are made with a series of alined openings, with any pair of which the openings in the ends of rods 22 may be alined to receive securing-pins to hold the rods and brace the arms 18, thus permitting the outer ends of the arms to be adjusted laterally, according to the thickness of the stone.

On the upright frame 2 a horizontal shaft 25 is mounted in suitable bearings 26, and pinions 27 are mounted on this shaft. Each pinion 27 is made with groove 27<sup>a</sup> to receive a key or spline 27<sup>b</sup> on the shaft, so as to cause said pinions to rotate with the shaft, but to be adjustable thereon, according to the thickness of the stone, and said pinions mesh with racks 28 on the under faces of parallel bars 29, the lower and outer ends of said bars being pivotally secured to the blocks 19 on the outer ends of arms 18. A worm-gear 30 is also secured on shaft 25 and receives motion from a similar gear 31 on a shaft 32. The shaft 32 is supported at one end in a bracket 33, secured to upright frame 2, and near the outer end of the shaft it is hung in a bearing 34 at the lower end of a lever 35. The lever 35 is pivoted between its ends to a yoke-bracket 36, secured to frame 1, and the forward end of shaft 32 carries a beveled friction-gear 37 to engage either of the friction-gears 11 or 12 or lie idle between them. The upper end of lever 35 is connected by a link 38 with one member of a bell-crank lever 39, mounted on a bracket 40, and the other member of the bell-crank lever 39 is connected by a rod or link 41 with a hand-lever 42, fulcrumed on the frame 1. This lever 42 is provided with a detent 43, controlled by the op-

erator and adapted to engage in any of the notches of a segment 44, secured to frame 1, and lock the lever and parts controlled thereby at any adjustment.

5 The operation of my improvements is as follows: Motion is transmitted to shaft 3 to turn the stone and the gears 11 and 12. The operator then throws lever 42 in one direction, causing the gear 37 to engage one of the  
10 gears 11 or 12 and drive-shaft 32 and through the medium of gears 31 and 30 turn shaft 25 and the pinions 27 on the latter, move racks 28 and bars 29 forward, thus feeding the bits 20 downward as the stone is ground. To  
15 move the bits upward, the gear 37 is moved into engagement with the other gear 11 or 12, as the case may be, and to hold the bits stationary the lever 42 is moved to a vertical or intermediate position.

20 The arms 18, carrying the bits, may be adjusted longitudinally to exactly position them by moving levers 16 to turn eccentrics 15, and a great many slight changes might be made in the general form and arrangement  
25 of the parts described without departing from my invention, and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall  
30 within the spirit and scope of my invention.

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

1. In a machine of the character described,  
35 the combination with means for rotating a stone, of a pivoted arm, a cutter carried by said arm, a longitudinally-movable bar pivotally connected with said arm, and means  
40 for moving said bar and permitting its forward end to simultaneously descend with the pivoted arm and cutter.

2. In a machine of the character described, the combination with means for rotating a stone, of a pivoted arm carrying a cutter, a  
45 shaft, a pinion on said shaft, and a rack-bar mounted upon said pinion and pivotally attached to the arm carrying the cutter.

3. In a machine of the character described, the combination with a rotary mounting for  
50 a stone, of a pivoted arm carrying a cutter for dressing the stone, a shaft, a pinion on the shaft, a rack-bar mounted upon said pinion and pivotally connected with the arm carrying the cutter, and gearing between said rotary mounting and said shaft.  
55

4. In a machine of the character described, the combination with means for rotating a stone, of a pivoted arm, a cutter carried by  
60 said arm, means for adjusting said arm longitudinally and means connected with said pivoted arm to move the cutter in contact with the stone.

5. In a machine of the character described, the combination with means for rotating the  
65 stone, of two pivoted arms, cutters carried by

said arms, longitudinally-movable bars pivotally connected with said arms, and means for driving said bars and permitting their forward ends to simultaneously descend with the pivoted arms and cutters. 70

6. In a machine of the character described, the combination with means for rotating a stone, of two pivoted arms, cutters carried by said arms, means for adjusting said arms longitudinally and means connected with  
75 said pivoted arms to move the cutters in contact with the stone.

7. In a machine of the character described, the combination with a shaft constructed to receive a stone to be turned, of two pivotally-  
80 supported arms, cutters carried by said arms, rack-bars pivotally connected with said arms, pinions on which said rack-bars are mounted and means for operating said pinions.

8. In a machine of the character described,  
85 the combination with a shaft to receive a stone to be turned, and driving means for said shaft, of two pivotally-supported arms, cutters carried by said arms, rack-bars pivotally connected with said arms, pinions  
90 upon which said rack-bars are mounted, and means intermediate the driving-shaft and said pinions for operating the latter when the driving-shaft and stone are rotated.

9. In a machine of the character described,  
95 the combination with a rotary mounting for a stone to be ground, of bit-carrying devices, longitudinally-movable bars pivotally connected with said devices, racks on said bars, and pinions engaging said racks for feeding  
100 the bits to the stone as the latter is ground.

10. In a machine of the character described, the combination with rotary mounting for a stone, of pivoted arms, bits carried by said arms, longitudinally-movable bars connected  
105 at one end to said arms, racks on said bars, pinions engaging said racks, and means for turning said pinion controlled by the turning of the stone-mounting.

11. In a machine of the character described,  
110 the combination with a shaft, means for securing a stone thereon, and facing beveled friction-gears on said shaft, of pivoted bit-carrying arms, bars connected with said arms, racks on said bars, pinions engaging  
115 said racks, a friction-gear to drive said pinions, and means for moving said friction-gear into engagement with either of the first-mentioned friction-gears according to the direction of movement desired for the bars. 120

12. In a machine of the character described, the combination with rotary mounting for a stone to be ground, of a shaft, eccentrics thereon, straps or bands on said eccentrics, arms secured to said straps or bands and cutter heads  
125 or blocks carried by said arms, and levers secured to the eccentrics and adapted to turn them to adjust the arms longitudinally.

13. In a machine of the character described, the combination with a rotary mounting for  
130

a stone to be ground, of laterally-adjustable  
pivotaly - supported arms, cutters carried  
thereby, longitudinally - movable rack - bars  
pivotaly connected with said arms, a shaft  
5 under said rack-bars, pinions laterally ad-  
justable on said shaft and meshing with the  
rack-bars, means for driving said shaft and  
means for rotating the stone-mounting.

14. In a machine of the character described,  
10 the combination with a rotary stone-mount-  
ing, of swinging arms, means for supporting

the same, bits carried by said arms, lateral  
brace-rods pivotaly secured to the arms at  
one end, and means at the other ends of the  
brace-rods to adjust the arms laterally. 15

In testimony whereof I have signed this  
specification in the presence of two subscrib-  
ing witnesses.

DOUGLAS PERDEW.

Witnesses:

C. E. FOSTER,  
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