

No. 688,505.

Patented Dec. 10, 1901.

D. P. DEIBLER.

GEARING FOR GRINDING OR POLISHING MACHINES.

Application filed Apr. 16, 1901.

(No Model.)

Fig. 1.

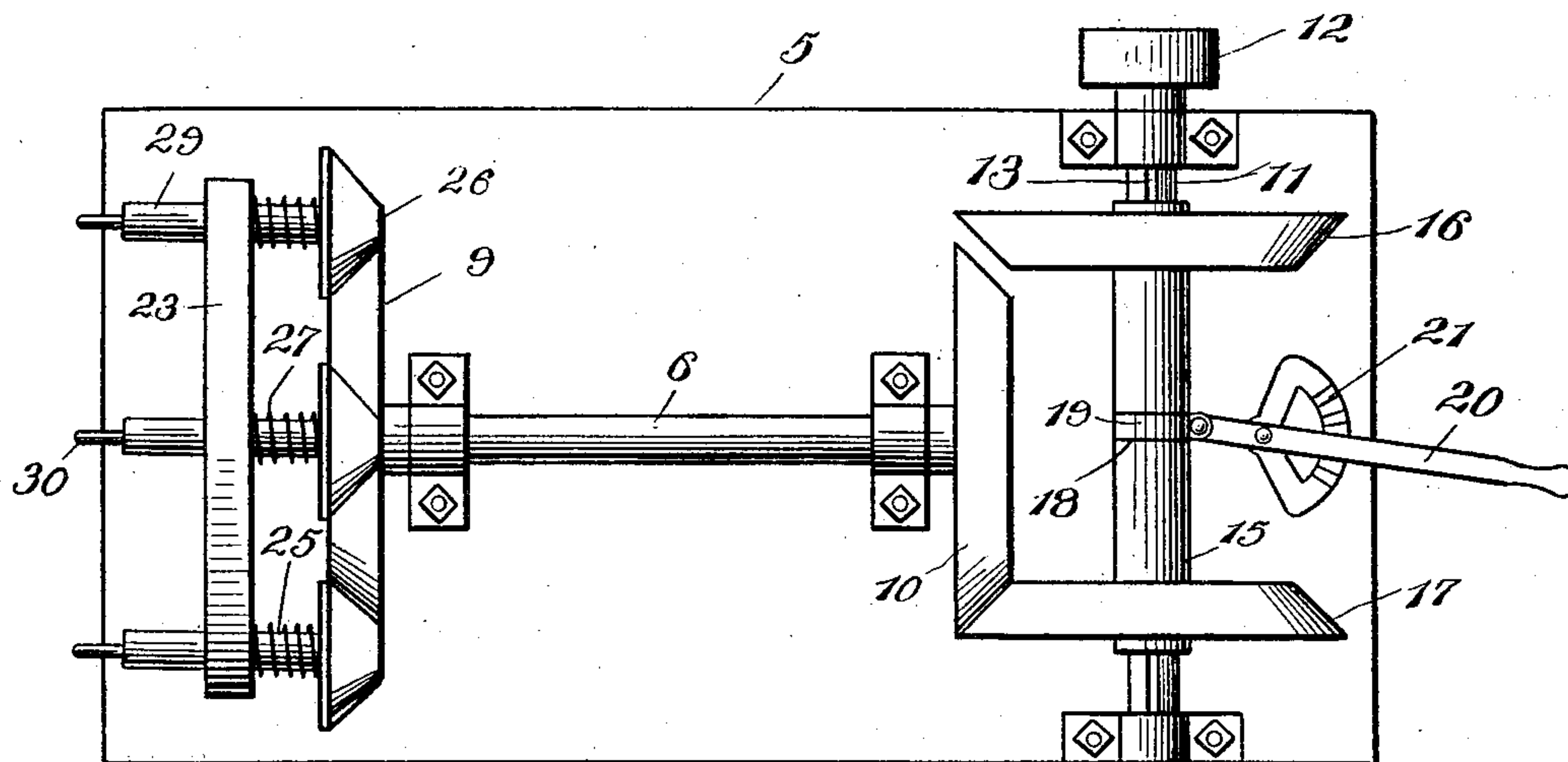
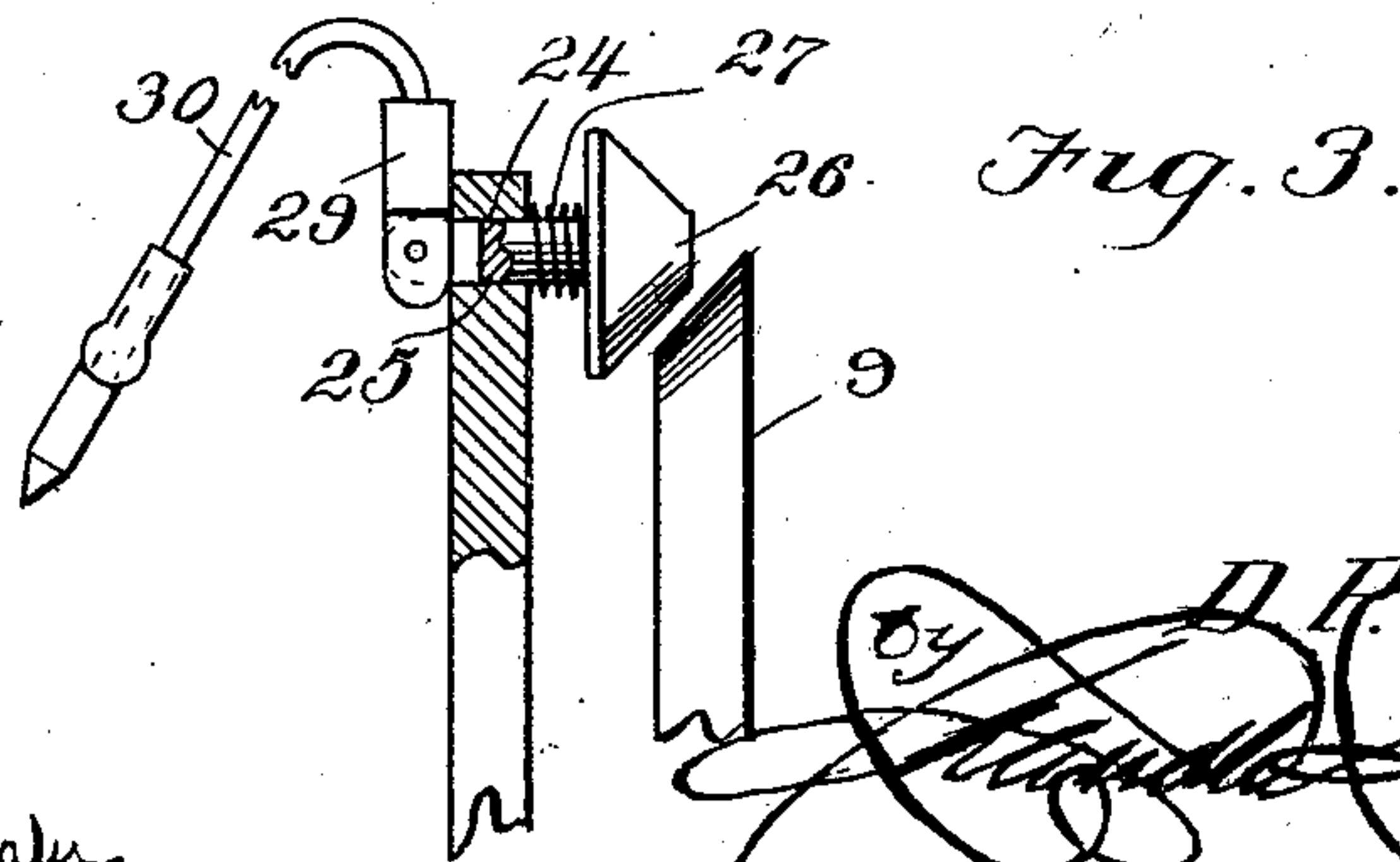
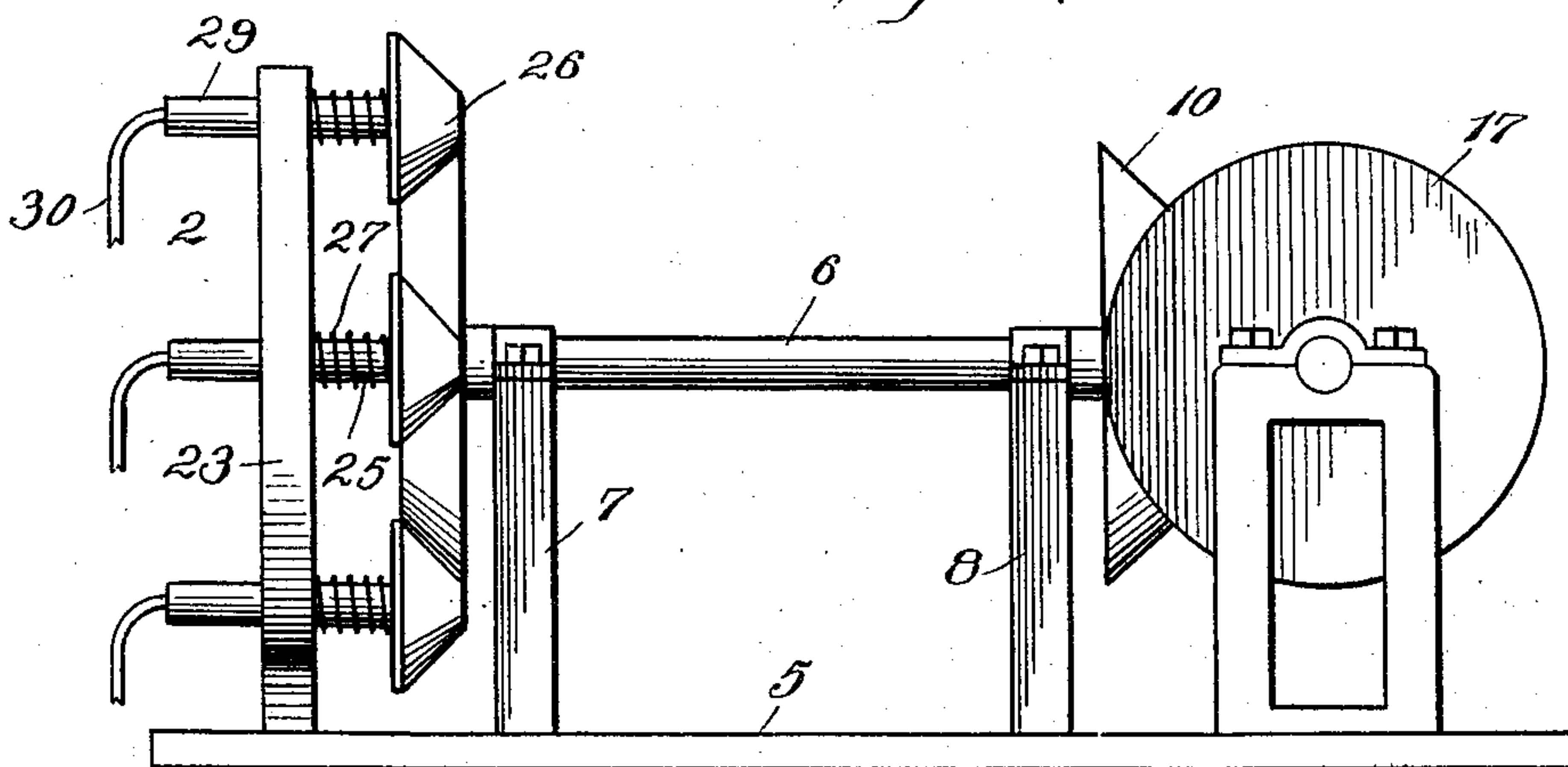


Fig. 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## GEARING FOR GRINDING OR POLISHING MACHINES.

SPECIFICATION forming part of Letters Patent No. 688,505, dated December 10, 1901.

Application filed April 16, 1901. Serial No. 56,088. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID P. DEIBLER, a citizen of the United States, residing at Hughesville, in the county of Lycoming, State of Pennsylvania, have invented certain new and useful Improvements in Gearing for Grinding and Polishing Machines; 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.

This invention relates to gearing for grinding or polishing machines, and more particularly to that class designed for treating objects having uneven or irregular surfaces, the object of the invention being to provide a simple and efficient construction wherein any one or more of a number of tools may be thrown into operative relation to a drive-shaft and may be readily thrown out of such relation at the proper time.

Further objects and advantages of the invention will be evident from the following description.

In the drawings forming a portion of this specification and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a top plan view of the machine. Fig. 2 is a side elevation of the machine. Fig. 3 is a detail view, partly in section and showing the means for holding the short terminal shafts of the flexible shafts in and out of operative relation to the driving friction-pulley.

Referring now to the drawings, the present machine comprises a base 5, upon which is mounted a shaft 6 in bearings in standards 7 and 8, said shaft having a beveled friction-wheel 9 at one end and a second beveled friction-wheel 10 at the opposite end, said wheels being fixed to the shaft. At right angles to the shaft 6 is mounted a second shaft 11, having a drive-pulley 12 thereon and through the medium of which it is rotated, and this shaft 11 is provided with a spline-groove 13, with which are engaged the splines of a sleeve 15, having oppositely-disposed beveled gears 16 and 17 fixed thereon and so disposed that when the sleeve is shifted first one and then the other of the bevel-gears 16 and 17 will be engaged with the beveled gear 10, said gears being all friction-gears, as shown. Thus by

shifting the sleeve 15 its gears may be brought alternately into operative relation to wheel 10 to reverse the direction of rotation of the shaft 6.

In the sleeve 15 is formed a peripheral groove 18, with which is engaged a strap 19, having a lever 20 attached thereto and through the medium of which the strap may be shifted to correspondingly move the sleeve. A rack 21 is disposed for coöperation with the lever to hold it at different points of its movement.

The beveled friction-wheel 9 is disposed with its bevel outwardly, and adjacent thereto and in the plane of rotation thereof there is mounted upon the base 5 a standard 23, having a plurality of bearings 24 therein. In each of these bearings 24 is disposed a short shaft 25, on the end of which adjacent to the wheel 9 is secured a bevel friction-wheel 26, which is held normally in engagement with the wheel 9 through the medium of a helical spring 27, disposed upon the shaft 25 and bearing at its ends against the standard 23 and the wheel 26, whereby each of the short shafts may be rotated from the wheel 9. The rear ends of the short shafts 25 are slotted, as shown, and in these slots are pivoted the reduced ends of supplemental shaft-sections 29, which when moved pivotally are adapted to aline with their respective shafts 25 to form continuations thereof and when moved to a second position may lie at right angles to the shafts 25 and project outwardly from opposite points thereof.

When the wheels 26 are in engagement with wheel 9, the shafts 29 are drawn into the bearings 24 and are adapted for rotation with shafts 25, and these shafts 29 may be drawn rearwardly to disengage wheels 26 from wheel 9 and may be then turned laterally on their pivots to hold the shafts 25 against return movement. When any one of the shafts 29 is to be rotated, it is moved pivotally to aline with its respective shaft 25, when the spring moves shafts 25 and 29 longitudinally and engages wheel 26 with wheel 9.

Each shaft 29 has a flexible shaft 30 attached thereto, and each shaft 30 has a chuck to receive a separate grinding or polishing tool.

In practice the shafts 29 are held inoperative and the chucks are engaged with a rack.



When any specific form of tool is to be used, its respective wheel 26 is engaged with wheel 9, which being in rotation the tool will be rotated.

5 In practice various modifications of the specific construction shown may be made and any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

10 What is claimed is—

1. In a device of the class described, the combination with a drive-shaft and a beveled friction-wheel thereon, of a standard disposed parallel with the plane of rotation of the  
15 wheel, a plurality of shafts rotatably and slidably mounted in the standard, and a beveled friction-wheel on each for operative engagement with the wheel upon the drive-shaft, means for holding the last-named wheels in  
20 engagement with the drive friction-wheel, means for holding the wheels out of such engagement, means for rotating the drive-shaft, and means for connecting tools with the shafts in the standard.

2. In a device of the class described, the combination with a drive-shaft and a drive friction-wheel thereon, of a standard having a plurality of bearings therein, a shaft mounted in each bearing, a friction-wheel on each  
30 shaft, means for holding said friction-wheels yieldably in operative engagement with the drive-wheel, means for holding the friction-wheels at times out of engagement with the drive-wheel, and a flexible shaft connected  
35 with each of the shafts in the standard and adapted for connection of a tool thereto.

3. In a device of the class described, the combination with a drive-shaft and a driving friction-wheel thereon, of a standard disposed  
40 adjacent to said wheel and having bearings therein, a shaft slidably and rotatably mounted in each of the bearings, and a friction-

wheel on each for operative engagement with the drive-wheel, springs disposed upon said shafts and bearing at their ends against the  
45 standard and the wheels upon the shafts to hold said wheels normally and yieldably in operative engagement with the drive-wheel, means for holding the shafts in the standard retracted to hold their wheels from engage-  
50 ment with the drive-wheel, and flexible shafts connected with the shafts in the standards and adapted for attachment of tools thereto.

4. In a device of the class described, the combination with a drive-shaft and oppo-  
55 sitedly-disposed beveled friction-wheels fixed thereon, a second shaft having a sleeve splined thereto and provided with means for rotating the shaft, beveled friction-wheels fixed upon the sleeve and adapted for alternate engage-  
60 ment with the friction-wheel at one end of the first shaft, means for shifting the sleeve to engage the wheels thereof alternately, a standard disposed adjacent to the second  
65 wheel upon the first shaft and having bearings therein, shafts disposed in said bearings for rotatable and sliding movement and having beveled friction-wheels for engagement with the adjacent friction-wheel upon the first  
70 shaft, means for holding the last-named wheels normally and yieldably in their engaged positions, means for moving their shafts longitudinally to withdraw them from engage-  
75 ment and to hold them in such positions, and flexible shafts connected with the shafts in the standard and adapted for attachment of tools thereto.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

DAVID P. DEIBLER.

Witnesses:

L. W. CROUSE,  
B. F. ZEHNER.