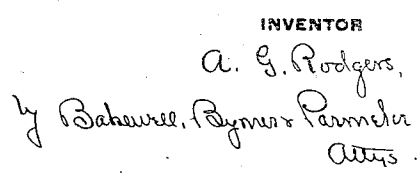


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UNITED STATES PATENT OFFICE.

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GRINDING-MACHINE.

1,055,081.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ASHMEAD G. RODGERS, a resident of Niagara Falls, in the county of Niagara and State of New York, have invented a new and useful Improvement in Grinding-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view partly in side elevation and partly in vertical section of a grinding machine embodying my invention; Fig. 2 is a detail sectional view showing the grinding wheel in one position in full lines and in a different position in dotted lines.

My invention has relation to certain new and useful improvements in grinding machines, and is designed to provide a machine having its grinding wheel so mounted that the wheel can be bodily turned about a horizontal axis, so as to bring it into the various angular positions best suited for different kinds of work.

The nature of my invention will be best understood by reference to the accompanying drawings, in which I have shown the preferred embodiment thereof and which will now be described, it being premised, however, that various changes may be made in the details of construction and arrangement of the several parts without departing from the spirit and scope of my invention as defined in the appended claims.

In these drawings, the numeral 2 designates the frame of the machine, and which is provided with a suitable clamp 3, for attaching it to a table, bench or other suitable support.

4 designates the grinding wheel, which is secured to a shaft 5. This shaft is provided with bearings in a casing member 6, having a removable end cap 7, and also having a sleeve extension 8. This extension 8 telescopes rotatably within the tubular casing portion 2^a of the frame 2. The wheel shaft 5 is shown as having a spiral gear 9, fixed thereto, and meshing with a spiral gear 10 on a shaft 11, which is at substantially right angles to the shaft 5 and which is provided with a bearing within the sleeve 8 and with another bearing 12 in the opposite end portion of the tubular casing portion 2^a. The shaft 11 carries a spiral gear 13, which meshes with a spiral gear wheel 14, on a

shaft 15, parallel with the shaft 5 and having bearings in the frame 2. In the present instance, the shaft 15 is shown as adapted to be driven by a hand crank 16, but it may be driven in any suitable manner.

It will be readily seen that the sleeve extension 8 of the casing and the supporting member 6 can be rotated within the tubular casing 2^a through an angle of ninety degrees, so as to turn the wheel bodily about the axis of the shaft 11. The wheel may therefore be adjusted to any desired angular position between the vertical position shown in full lines in Figs. 1 and 2, and a substantially horizontal position above the shaft 11. The wheel may be secured in its adjusted position by any suitable means. In the drawings, I have shown a clamp screw 17, having a bearing in the tubular portion 2^a and formed with a tapered portion 17^a, which is adapted to frictionally engage the sleeve extension 8.

The numeral 18 designates a work rest which is adjustably secured to the cap 7 of the casing 6.

19 designates a thrust bearing for the shaft 11, carried by the cap 7.

When the wheel is turned from the vertical position shown in full lines in Fig. 2 to an angular position, such as shown in dotted lines in said figure, the gears 9 and 10, of course, turn as a unit with the shaft 11, the latter rotating in its bearing 12, and the sleeve extension 8 rotating in its seat. The spiral gear 13 turns on the gear 14.

The advantages of my invention will be apparent, since it provides a grinding machine in which the wheel may be quickly adjusted to any desired position. Instead of employing spiral gears, I may, of course, use bevel gears and various other changes may be made in the details of the parts.

I claim:

1. A grinding machine, comprising a horizontal shaft in a fixed mounting, and a bearing support carrying a grinding wheel whose shaft is perpendicular to said driving shaft and is connected to said driving shaft by gears, said support being concentric with said driving shaft and revolvably mounted in said fixed mounting, substantially as described.

2. A grinding machine, comprising a horizontal shaft in a fixed mounting, and a

bearing support carrying a grinding wheel whose shaft is perpendicular to said driving shaft and is connected to said driving shaft by gears, said support being concentric with said driving shaft and revolubly mounted in said fixed mounting, together with clamping means between said fixed mounting and said support, substantially as described.

10 3. A grinding machine, comprising a horizontal shaft in a fixed mounting, and a bearing support carrying a grinding wheel whose shaft is perpendicular to said driving shaft and is connected to said driving shaft by gears, said support being concentric with said driving shaft and revolubly mounted in said fixed mounting, and said support also forming one bearing of said driving shaft, substantially as described.

20 4. A grinding machine, comprising a horizontal shaft in a fixed mounting, and a bearing support carrying a grinding wheel whose shaft is perpendicular to said driving shaft and is connected to said driving shaft by gears, said support being concentric with said driving shaft and revolubly mounted in said fixed mounting, said sup-

port also forming one bearing of said driving shaft, together with a driving gear, and gearing connecting it to said driving shaft, said support forming a gear case for said gearing, substantially as described.

5. A grinding machine, comprising a horizontal shaft in a fixed mounting, and a bearing support carrying a grinding wheel whose shaft is perpendicular to said driving shaft and is connected to said driving shaft by gears, said support being concentric with said driving shaft and revolubly mounted in said fixed mounting, said support also forming one bearing of said driving shaft, together with a driving gear, and gearing connecting it to said driving shaft, said support forming a gear case for said gearing, and said support carrying the end thrust bearing for said driving shaft, substantially as described.

In testimony whereof, I have hereunto set my hand.

ASHMEAD G. RODGERS.

Witnesses:

SAMUEL J. DEVLIN,
THOS. DEAN.