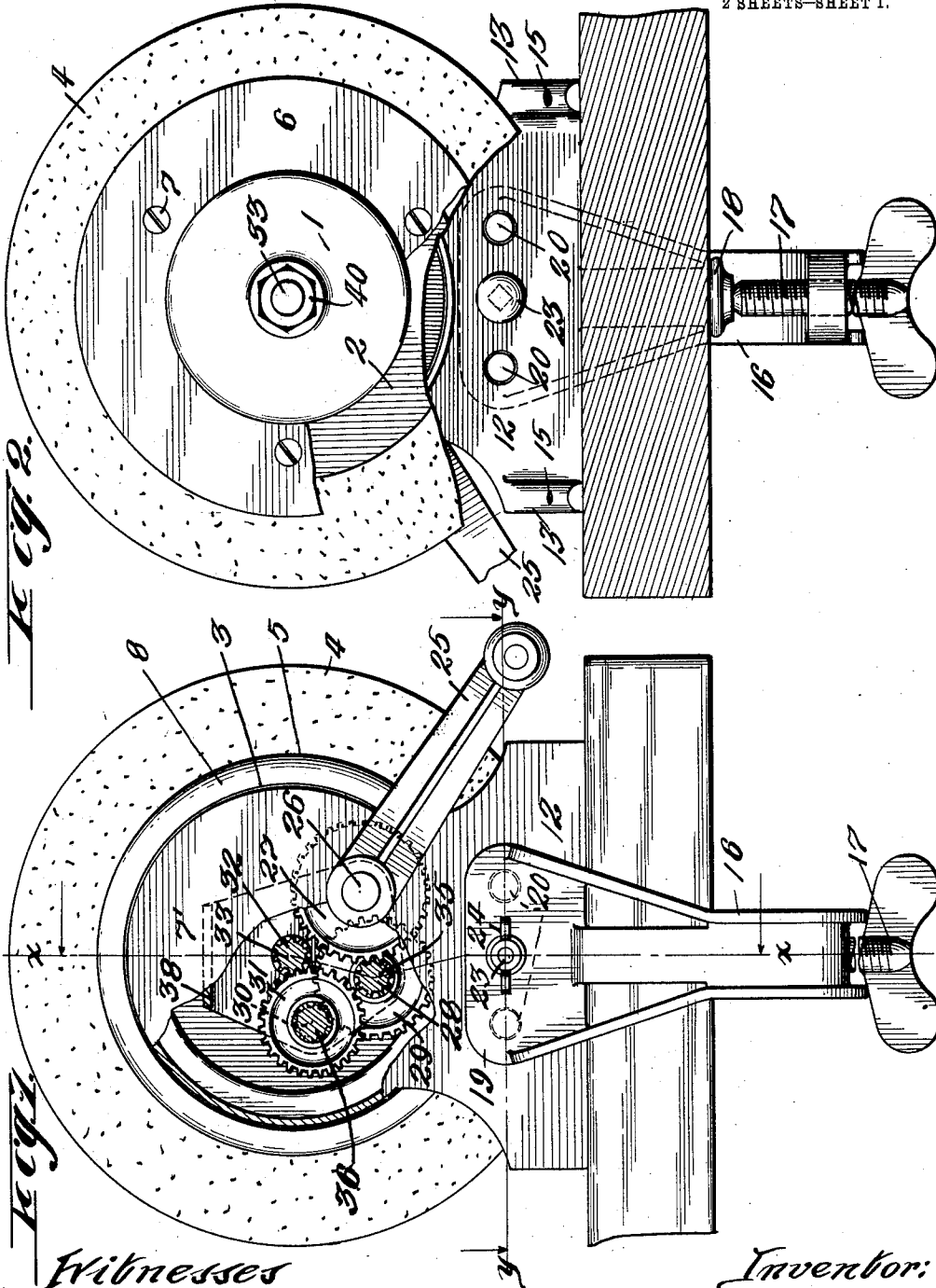


J. M. THOMPSON.
GRINDING MACHINE.
APPLICATION FILED NOV. 4, 1911.

1,063,618.

Patented June 3, 1913.

2 SHEETS—SHEET 1.



W. C. G. 2.

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Witnesses

R. L. Jamington
J. D. Bremer.

Inventor:

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Fig. 4.

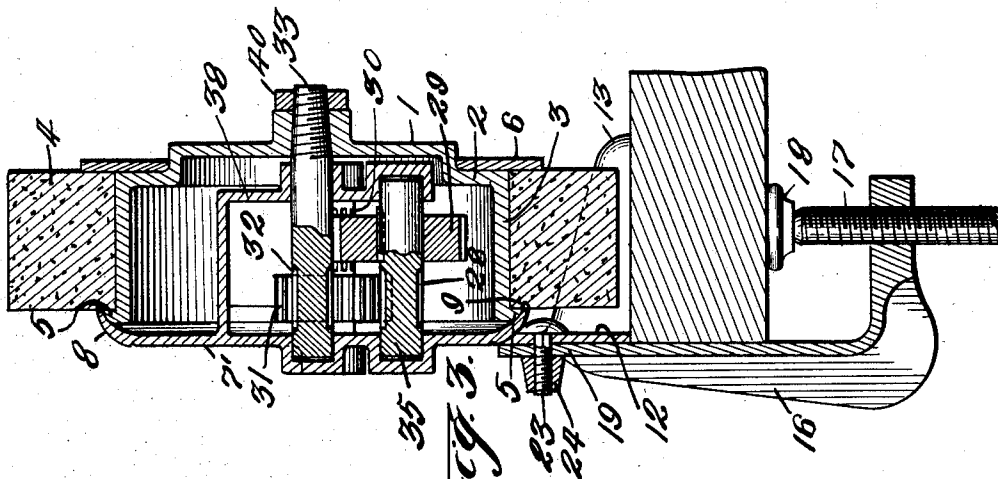
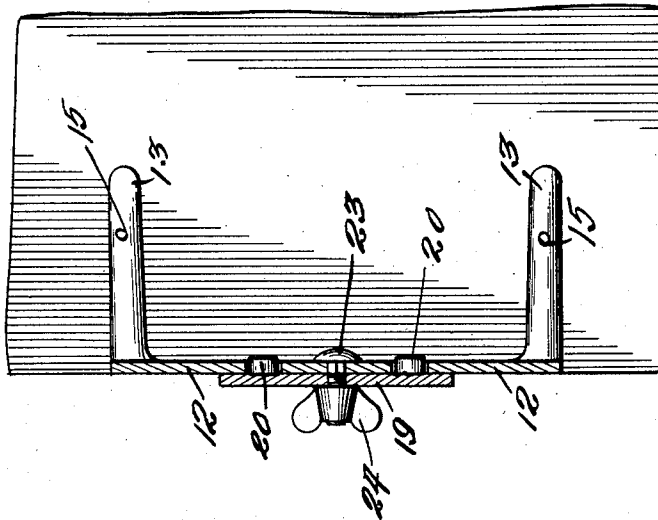


Fig. 3.

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UNITED STATES PATENT OFFICE.

JAMES M. THOMPSON, OF MILWAUKEE, WISCONSIN.

GRINDING-MACHINE.

1,063,618.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed November 4, 1911. Serial No. 658,526.

To all whom it may concern:

Be it known that I, JAMES M. THOMPSON, a citizen of the United States, residing at Milwaukee, county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Grinding-Machines, of which the following is a specification.

My invention relates to improvements in grinding machines.

10 The object of my invention is to provide a compact structure in which the motion transmitting gearing is disposed within and is so located that it will not interfere with the manipulation of tools with reference to the grinding wheel, and in which said gear- 15 ing will be concealed within the grinding wheel itself, no part of the driving mechanism being visible except the operating crank.

20 In the drawings—Figure 1 is a side elevation of a grinding wheel embodying my invention with the gear casing partly broken away to show the driving connections. Fig. 2 is an elevation of the grinding wheel as 25 seen from the opposite side, a portion of the wheel and wheel clamping ring being broken away. Fig. 3 is a vertical sectional view, drawn on line *x—x* of Fig. 1. Fig. 4 is a sectional view, drawn on line *y—y* of Fig. 1, showing the construction of the support- 30 ing clamp.

Like parts are identified by the same reference characters throughout the several views.

35 A casing member 1, provided with an inwardly offset portion 2 and a peripheral portion 3, is adapted to be received by a grinding wheel 4, the grinding wheel being in the form of an open ring adapted to loosely fit upon the peripheral portion 3 of 40 the casing. The portion 3 of the casing is provided with a marginal flange 5 against which the grinding wheel may abut. A clamping ring 6 is secured by screws 7 to the offset portion 2, and the grinding wheel 45 4 is clamped between the outer portion of this ring 6 and the flange 5. A disk shaped casing wall 7' covers the free margin of the portion 3 and the outer side of the flange 5 and is preferably provided with an inturned 50 peripheral flange 8, which extends over the periphery of the flange 5 and may be received in an annular recess 9 in the grinding wheel, as clearly shown in Fig. 3. This 55 disk shaped portion 7' of the casing is provided with a downwardly extending sup-

porting member 12, provided with foot pieces 13 adapted to rest upon a table or other suitable support to which it may be secured by screws inserted through holes 15 in the foot 60 pieces 13. Where it is desired to clamp the device to a table or other support instead of securing it by means of screws, as above stated, I employ a clamping bracket 16 and clamping set screw 17 provided with a swivel 65 head 18 of ordinary construction. The clamping bracket, however, is detachable from the support 12 and for convenience in attaching and detaching it, I form the bracket 16 with a fan shaped upper extrem- 70 ity 19, having two stud projections 20 adapted to fit into suitable holes in the support 12. A set screw 23 extends through the support and through the portion 19 of the bracket, whereby I am enabled to bind these 75 parts together with a single thumb nut 24 coöperating with the stud projections 20 to secure rigidity.

The grinding wheel is driven from a manually operated crank 25 through shaft 26, 80 and a train of gears comprising gear wheel 27, pinion 28, gear wheel 29, pinion 30, gear wheel 31, and pinion 32, the latter being fast (or integral with) the grinding wheel shaft 33. The pinions 28 and 30 are also 85 fast upon or integral with shafts 35 and 36 respectively, each of said pinions being preferably cut into the material of the shaft or cast integral therewith. Each of the shafts 26, 35, 36 and 33 have bearings in 90 the fixed member 7' of the gear casing, this member being provided with an auxiliary bearing member 38, which supports these shafts on the opposite side of the gear wheels from that occupied by the disk shaped mem- 95 ber 7'.

The grinding wheel shaft 33 extends through the auxiliary member 38 and is rigidly secured to the casing member 1 on the opposite side of the grinding wheel from 100 that on which the crank 25 is located. To secure shaft 33 to the member 1, the shaft is preferably tapered where it passes through said member, the shaft receiving aperture being correspondingly tapered so that the 105 shaft may be drawn into the aperture with a wedging action by a nut 40. The shaft and gearing are first assembled between the disk 7 and the auxiliary member 38, the latter being either apertured to receive the re- 110 spective shafts, or provided with suitable sockets for the shafts, as shown in Fig. 3,

the material being sufficiently flexible to permit the auxiliary bearing member to be sprung away from the member 7 when inserting the shafts. The member 1 with the grinding wheel attached, may then be adjusted in position to cover the gearing and secured to the shaft 33 by the nut 40. This shaft 33 will of course be adjusted in its bearings by axial movement through member 38 into its bearing socket in the member 7, driving shaft 26 being similarly adjusted into position from the opposite side. Both of these adjustments are effected before the member 1 is assembled.

It will be observed that with the foregoing construction, the driving connections will not only be securely housed and invisible, but the casing which inclosed them will not occupy space at the sides of the wheel to interfere with the manipulation of tools, which are being ground upon the wheel. The entire structure will be compact, and by means of the clamping bracket and set screw, it may be very quickly and easily attached to and detached from a table and kept in the drawer of a table or work bench, where an ordinary grinding wheel could not be placed on account of its bulk.

I claim—

1. The combination with a set of driving connections, of a casing therefor comprising one fixed and one movable member, said movable member having a peripheral rim encircling the driving connections and a grinding wheel secured to said periphery.

2. The combination with a supporting casing member, driving connections mounted upon said casing member, a rotary casing member coöperating with said supporting casing member to inclose said driving connections, and a grinding wheel mounted upon said rotary casing member.

3. The combination with a set of fixed and removable casing members assembled to form a gear receiving cavity, an auxiliary

bearing member supported from the fixed casing member, shafts having bearings in the fixed casing member and bearing member respectively, a train of intermeshing gears on said shafts, a crank, a connection between the crank and driving shaft of said train, a connection between the driving shaft of said train and the movable casing member, and a grinding wheel mounted upon the movable casing member.

4. The combination with a set of fixed and removable casing members assembled to form a gear receiving cavity, an auxiliary bearing member supported from the fixed casing member, shafts having bearings in the fixed casing member and bearing member respectively, a train of intermeshing gears on said shafts, a crank, a connection between the crank and driving shaft of said train, a connection between the driving shaft of said train and the movable casing member, and a grinding wheel mounted upon the movable casing member, said movable casing member having a wheel receiving periphery, an outwardly projecting flange against which the wheel abuts, and a clamping collar for binding the grinding wheel against said outwardly projecting flange.

5. The combination with a supporting plate, a clamping bracket detachably secured thereto, a train of driving gears mounted upon one side of said plate, a crank on the other side of said plate operatively connected to actuate said gear, a rotary casing member coöperating with said plate to inclose said gears, and a grinding wheel mounted upon said casing member.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES M. THOMPSON.

Witnesses:

LEVERETT C. WHEELER,
I. D. BREMER.