

Aug. 18, 1925.

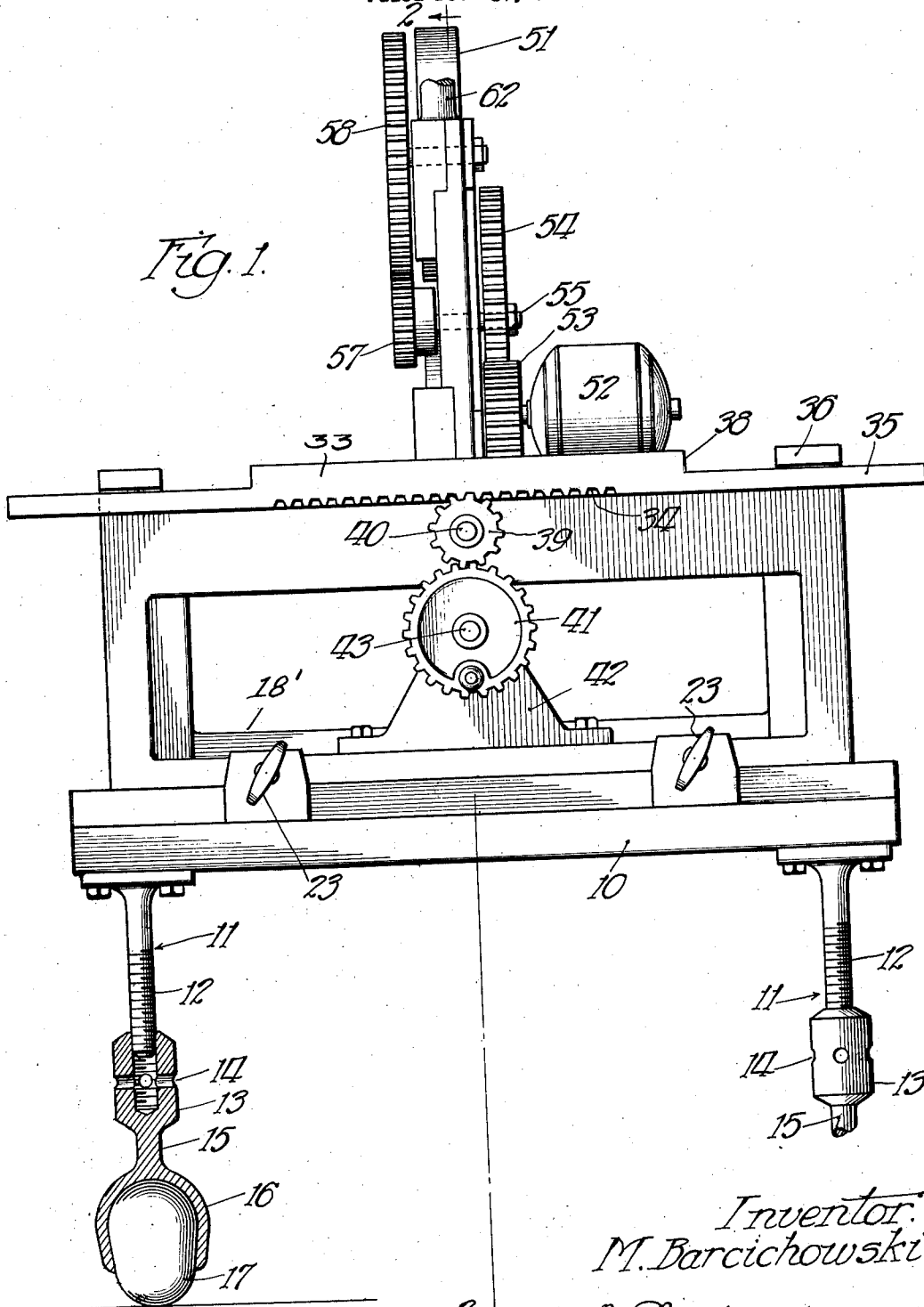
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M. BARCICHOWSKI

ROLLER GRINDING OR POLISHING MACHINE

Filed Dec. 17, 1924

3 Sheets-Sheet 1



Inventor:
M. Barcichowski.

By R. Pelechowicz Atty.

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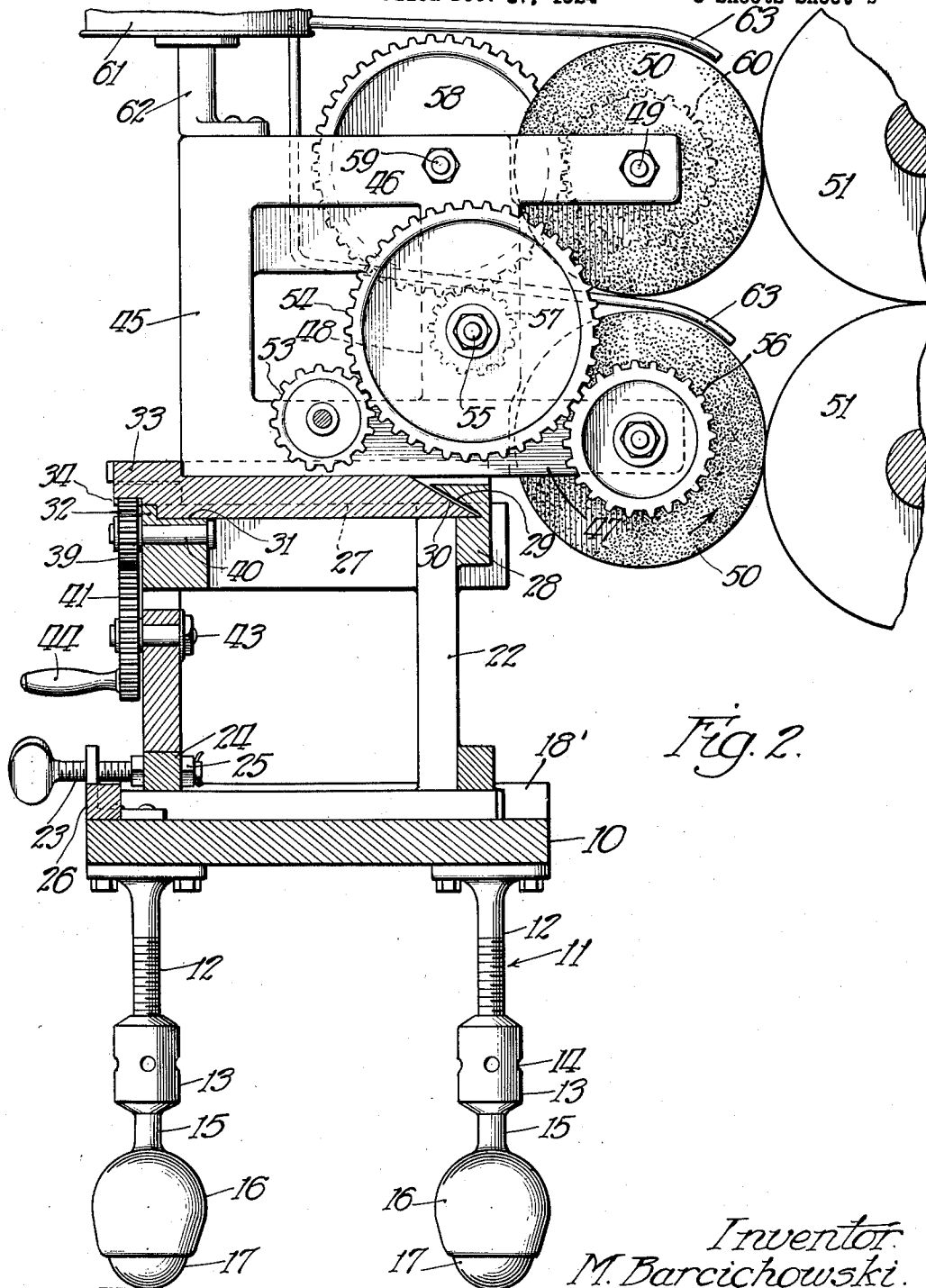
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3 Sheets-Sheet 3

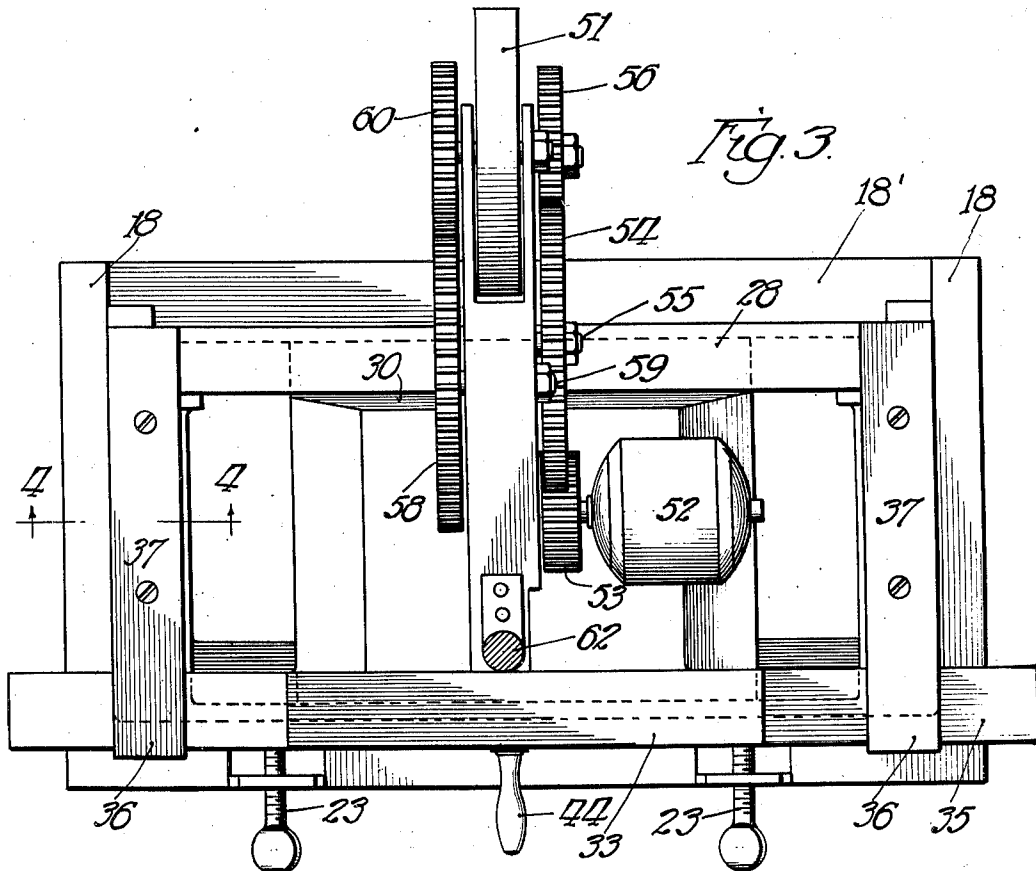
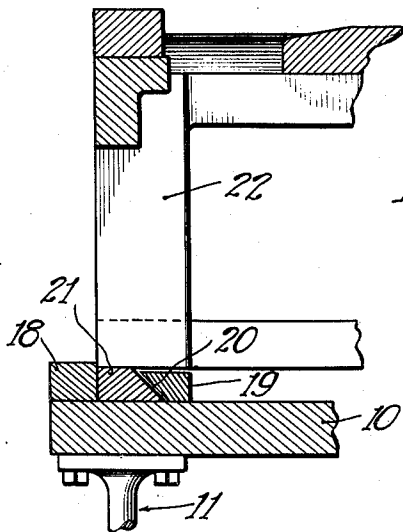


Fig. 4.

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UNITED STATES PATENT OFFICE.

MICHAEL BARCICHOWSKI, OF CHICAGO, ILLINOIS.

ROLLER GRINDING OR POLISHING MACHINE.

Application filed December 17, 1924. Serial No. 756,542.

To all whom it may concern:

Be it known that I, MICHAEL BARCICHOWSKI, a citizen of Poland, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Roller Grinding or Polishing Machines, of which the following is a specification.

The present invention relates to roller grinding machines, and its main object is to provide a machine of the type which is simple in construction, which may be easily transported and which may be easily manipulated.

A further object of the invention is to provide the machine which is capable of vertical, transversal and longitudinal adjustment in respect to the rollers to be ground.

With the above general objects in view and others that will appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts herein-after more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings forming a part of this application, and in which like designating characters refer to corresponding parts throughout the several views,

Figure 1 is a rear elevational view of the machine;

Figure 2 is a side sectional view of the machine taken on line 2—2 of Figure 1;

Figure 3 is a top plan view of the machine; and

Figure 4 is a sectional view through a portion of the machine on line 4—4 of Figure 3.

Referring to the drawings in detail, in which like reference characters designate corresponding parts throughout the several views, 10 designates a platform or bed supported in any suitable manner above the floor and adapted for vertical adjustment so that it may be set horizontally on a level or inclined forwardly or rearwardly. As shown, the means provided for this purpose consist of adjustable corner legs or standards 11 embodying upper screw threaded sections 12 having plate portions 13 bolted to the platform 10 and depending therefrom. The sections or shanks 12 are engaged by internally threaded sockets 13 having openings 14 by which they may be

turned in the manner of turn-buckle connections to raise or lower the platform in traversing the lengths of the screw sections or shanks 12. The sockets 13 are provided with lower shank portions or stems 15 formed with sockets or cups 16, preferably substantially elliptical or egg-shaped and open at the bottom to receive similarly shaped tread members 17 having their enlarged portions held in the cups 16 and their lower portions projecting therefrom for contact with the floor surface. By this means, and owing to the fact that the cups are free to turn on the smooth surfaces of the tread members while the latter are held stationary due to the frictional engagement thereof with the floor caused by the weight of the platform and other parts of the machine, by inserting a suitable bar or implement in the sockets or apertures 14 and turning the lower sections 13, the latter and the cups 16, will be free to turn on the tread members 17 so as to take up or extend the sections 12 due to the threaded engagement, thus shortening or lengthening the legs and elevating or lowering the platform.

The platform or table 10 is adapted to adjustably support the superstructure and working parts of the roller grinding machine, together with the grinding wheels, and for this purpose is provided at the sides with flanges 18 and at the back with a ledge or flange 18' disposed along its edges, while the front edge is freely open and unobstructed therebetween. Adjacent the sides of the ledge 18 and in spaced parallel relation thereto, rails 19 are secured upon the platform 10 and have undercut faces 20 providing guideways in connection with the sides of the ledge for slidably receiving transverse tracks 21 at the ends and lower corners of a frame structure or bed 22, which is thereby mounted for transverse adjustment forwardly and rearwardly upon the platform. As shown, the tracks 21 are beveled to fit the undercut faces 20, thus retaining the frame structure against vertical displacement when moved back and forth, and especially when in a projected or overhanging position with respect to the front of the platform. While I have shown the frame structure or bed 22 as composed of vertical, longitudinal and cross members forming an open frame, it is to be understood that this is principally for lightness in weight, accessibility and so that it may be readily

cleaned, lubricated and maintained in working condition. It may be formed as an integral structure or of parts suitably secured together and in either case, the tracks are held in the guideways in the manner of dove-tail connections and retained from vertical displacement as well as rearward displacement by the ledge 18 at the back of the platform.

In order to adjust the bed transversely back and forth, suitable means are provided between it and the platform, such means being shown in the form of screws 23 firmly secured to the rear longitudinal member 24 of the bed 22 in such a manner as to permit adjustment, as by nuts 25 or other suitable means engaging the screw upon opposite sides of the member or bar 24. These adjusting screws extend rearwardly in horizontal positions and have threaded engagement with threaded apertures in upstanding portions of angle brackets 26 secured to the platform 10 at its rear edge and adjacent each end of the platform and bed. The screws 23 may be manually or otherwise actuated independently as desired to shift the bed back and forth transversely of the platform, thus permitting minute and accurate adjustment as well as retention thereof in any desired working position.

The top of the frame or bed 22 serves to support a longitudinally adjustable and movable carriage 27 which carries the grinding rollers or wheels constituting the traveling tool of the machine. For this purpose, the front of the bed at the top is provided with a longitudinal bar or guide member 28 having an undercut groove 29 forming a guideway receiving for sliding movement therein, the beveled forward edge of the carriage 27. The back of the carriage rests in a recess 31 forming a shoulder 32 to prevent rearward displacement of the carriage and guide it in its movements across the machine and throughout the length of the rollers to be ground. In order to impart the necessary movement to the carriage to adjust the same longitudinally or cause reciprocation thereof, a rack bar 33 is formed in the back of the carriage above the shoulder 32 and adapted to slide thereon, it being understood that the parts so engaged should be properly lubricated. This bar has rack teeth 34 on the under side at the back or rear side of the carriage and bed, and has reduced ends 35 sliding under keepers 36 at the rear ends of strips 37 secured upon the ends of the bed as clearly seen in Figures 1 and 3 of the drawings. The keepers are formed by reducing the thickness or cutting out the strips or plates 37 at the bottom and at their rear ends to form grooves slidably receiving the reduced ends of the rack bar and constituting stops to limit the movements of the carriage in

either direction by engagement with shoulders 38 formed by said reduced ends. A pinion 39 is rotatably journaled on a shaft 40 at the back of the bed through the top longitudinal frame member thereof, in which suitable bearings and retaining means may be provided. This pinion meshes with a larger pinion or gear 41 journaled in a bearing 42 formed with or bolted to the back of the frame structure or bed 22 as shown in Figure 1, upon a shaft 43 carried by the bearing. The gear 41 is suitably turned as by hand, a handle 44 being shown for this purpose so that rotation may be imparted to the meshing pinion 39 at increased speed and by engagement of this pinion with the rack teeth 34, to reciprocate or slide the carriage crosswise of the machine, and longitudinally of the platform, frame structure or bed, and the rollers to be ground and polished.

The carriage 27 supports the grinding wheels or polishing rollers for acting upon the rollers or rolls of a rolling machine or mill to be ground as to smoothness, uniformity or other surface to be produced, and for this purpose a substantially U-shaped bracket 45 is provided thereon, including a vertical rear part and horizontal upper and lower arms 46 and 47 which may be reinforced by an intermediate strut 48. The free forward ends of the arms form bearings, being bifurcated to take shafts 49 which are journaled therein and have grinding wheels 50 fixed thereto. These wheels may be used for grinding or polishing and are formed of suitable abrasive material, such as carborundum, emery or the like, or of polishing material, and are adapted to be driven in opposite directions in engagement with the rollers or rolls 51 to be ground.

In order to drive these grinding wheels, a motor such as an electric motor 52 may be mounted upon the carriage 27 and has a pinion 53 on its rotor shaft in mesh with a large gear 54 fixed to a shaft 55 journaled in the bracket 45 at the strut or vertical part 48. The gear 54 in turn meshes with a gear or pinion 56 fixed to the shaft of the lower grinding wheel 50 to impart rotation thereto in one direction, preferably counterclockwise. The other end of the shaft 55 has a pinion 57 fixed thereto and meshes with a larger pinion or gear 58 journaled on a shaft 59 in the upper arm of the bracket, and this gear meshes with a pinion 60 fixed to the upper shaft 49 so that rotation is imparted to the upper grinding wheel in a clockwise direction, so that the two wheels are driven in reverse directions. It should also be noted that the gears 54 and 58 are the same diameter, as are the spur gears or pinions 56 and 60, but the speed of rotation of the grinding wheels or disks may be the

same or different as desired by simply varying the gear ratio. It will also be understood that the grinding wheels may be driven in the reverse directions from those described while in contact with the rolls to be ground, and that the diameters thereof may be the same or different, according to the nature and use of the rolls, as employed in rolling sheet metal or in other mill work where such rolls or rollers are employed. Furthermore, a suitable reservoir 61 may be mounted upon a bracket 62 supported upon the bearing bracket 45 and provided with outlet pipes 63 leading over the wheels 50 for the purpose of flushing, lubricating and cleaning the same of the abrasive material or shavings, generally in powder form, resulting from the abrasive action in the grinding and polishing of the rollers or mill rolls.

It will thus be seen and manifest that I have provided a novel and desirable roll grinding machine which may be easily manipulated, adjusted and transported, and by which the grinding wheels can be accurately adjusted or inclined to properly conform to the rolls to be ground irrespective of their diameters and relative positions vertically, and that with the combination of three major adjustments, namely, vertically, longitudinally and transversely, of the parts of the machine, the grinding wheels may be positioned for any required service to act upon rollers or rolls of any diameter, length, relative sizes or outline, that is whether cylindrical or formed with other regular or irregular surfaces. It is also to be understood that this work may be quickly and efficiently carried on by this machine, which latter has its parts so related as to prove strong and serviceable in use with few parts unlikely to get out of working order and capable of economical production, thereby facilitating quantity manufacture. Moreover, I do not desire to be limited to the exact details shown and described as such changes

in the form, relation and structure of the parts may be made as do not depart from the spirit and scope of the invention as will be hereinafter defined and claimed.

What I claim as new is:

1. In a roller grinding or polishing machine, a platform, means to raise, lower or incline the same, a bed adjustable back and forth on the platform, a tool carriage mounted for sliding movement and longitudinal adjustment on the bed, said means including legs extensible in length, means to retain the bed against displacement, means to retain the carriage against displacement, a bearing bracket on the carriage, grinding wheels journaled therein one above the other to engage the rollers to be ground, a motor on the carriage, and operative drive connections between the motor and wheels.

2. In a roller grinding or polishing machine, a platform, means for adjusting the positional plane of said platform, a superstructure frame, means cooperating with said platform and said superstructure frame for transversal adjustment of the latter in respect of the machine, a carriage upon said superstructure frame, a bar member in said superstructure frame having an undercut groove, said carriage having a beveled edge fitting in said groove, a rack bar integrally formed with said carriage, means cooperating with said superstructure frame and said rack bar for longitudinal adjustment of the carriage in respect of the machine, said rack bar having reduced ends, strips positioned upon said superstructure frame and having reduced ends, the reduced ends of said strips overlying the reduced ends of said rack bar for preventing upward displacement of the carriage and for limiting the longitudinal movement thereof, grinding wheels upon said carriage, and means for operating said wheels.

In testimony whereof I affix my signature.

MICHAEL BARCICHOWSKI.