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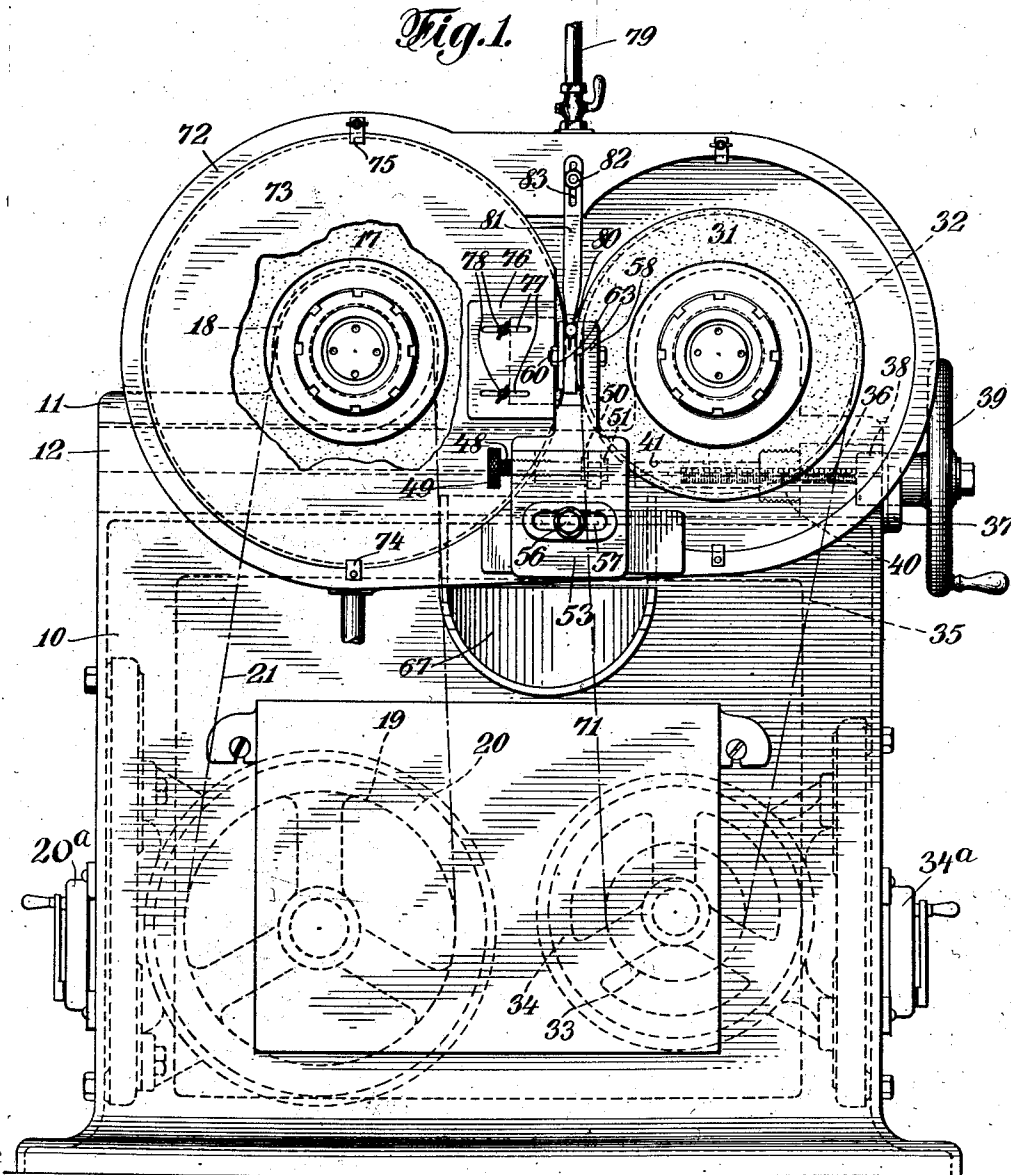
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L. R. HEIM

ROLL GRINDING APPARATUS

Filed June 11, 1921

4 Sheets-Sheet 1



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Emery, Varney, Blair & Hoquet.
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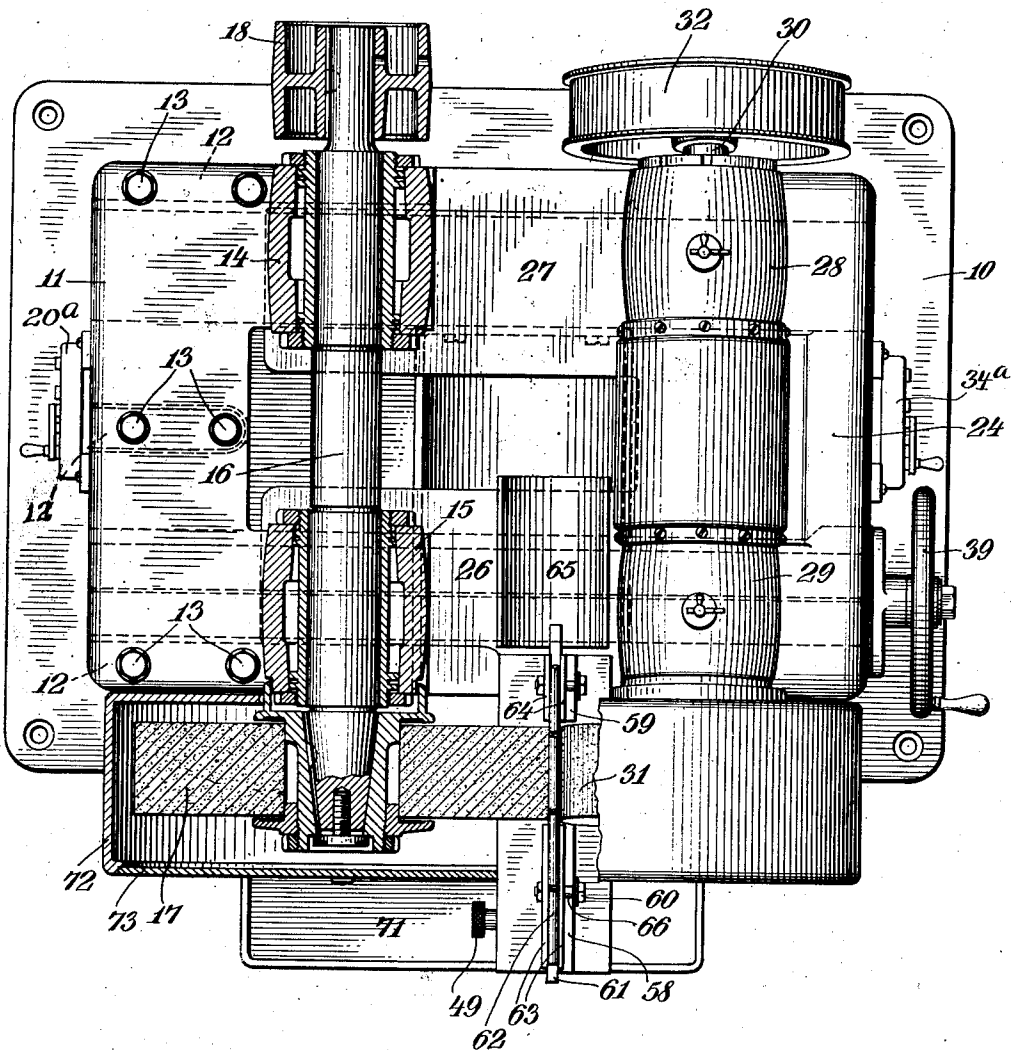
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Fig. 2.



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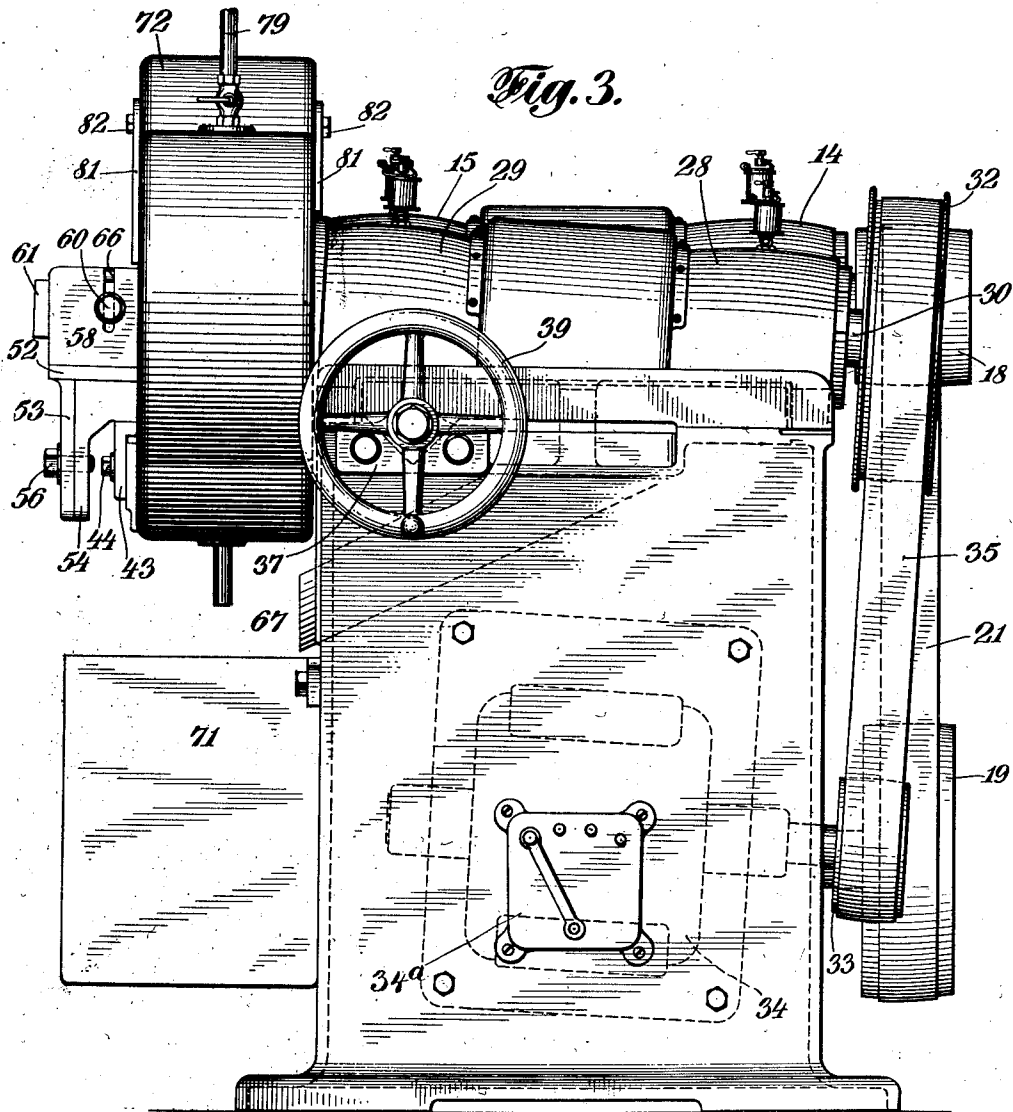
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4 Sheets-Sheet 3



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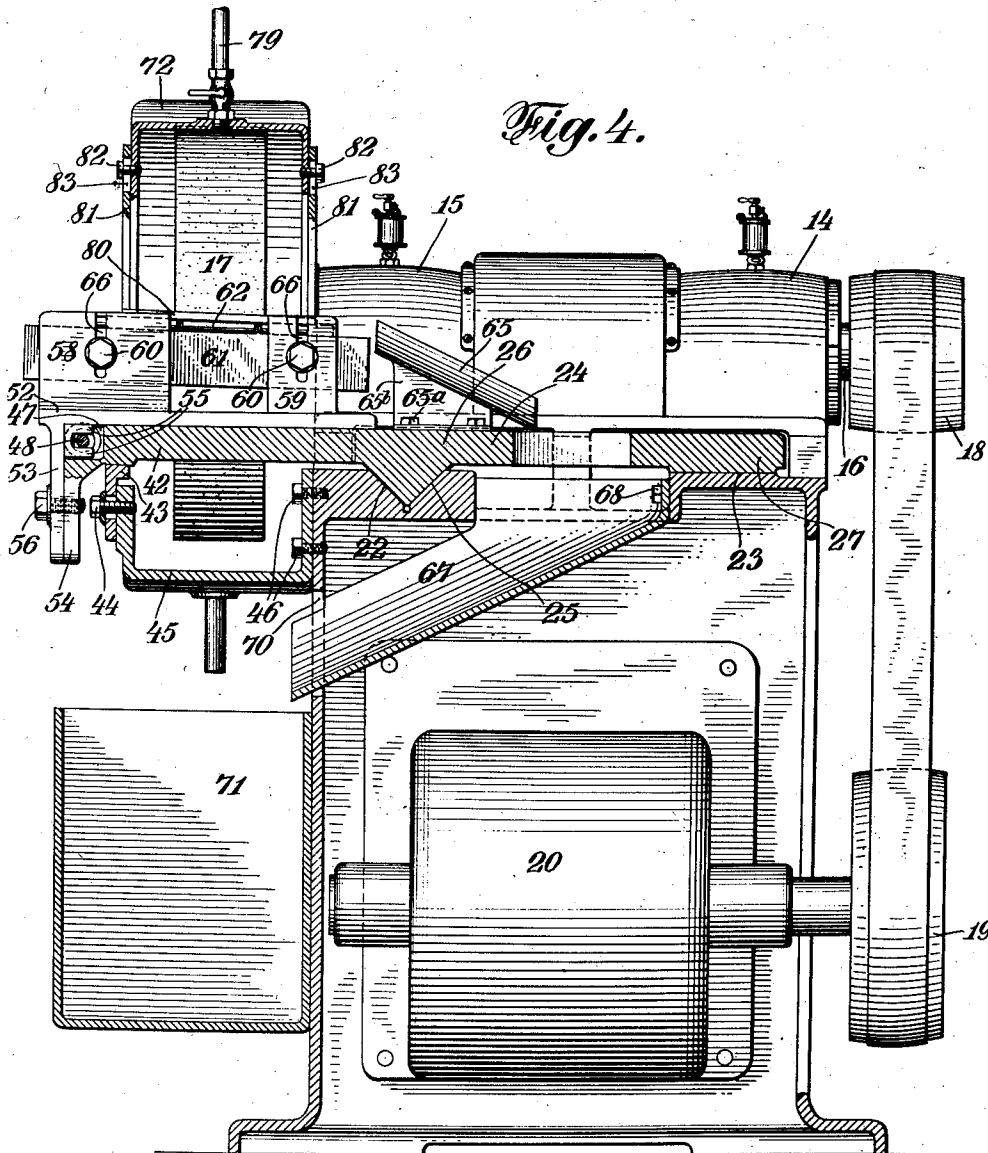
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ROLL GRINDING APPARATUS

Filed June 11, 1921

4 Sheets-Sheet 4



Lewis R. Heim Inventor

By his Attorneys
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UNITED STATES PATENT OFFICE.

LEWIS R. HEIM, OF DANBURY, CONNECTICUT, ASSIGNOR TO THE HEIM GRINDER COMPANY, OF DANBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT.

ROLL-GRINDING APPARATUS.

Application filed June 11, 1921. Serial No. 476,689.

To all whom it may concern:

Be it known that I, LEWIS R. HEIM, a citizen of the United States, and a resident of Danbury, in the county of Fairfield and State of Connecticut, have invented an Improvement in Roll-Grinding Apparatus, of which the following is a specification.

This invention relates to apparatus for the grinding of rolls and the like. One of the objects thereof is to provide a practical and compact apparatus for grinding rolls and like articles in which facility of adjustment and variability of action of the various parts thereof are combined with durability and compactness of construction. Another object is to provide apparatus of the above nature in which positive and accurate action upon the articles operated upon is assured. Other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which is shown one of various possible embodiments of the mechanical features of this invention;

Figure 1 is a front elevation;

Figure 2 is a plan view of the apparatus shown in Fig. 1, partly in section in order to show the construction more clearly;

Figure 3 is an end view as seen from the right in Fig. 1; and

Figure 4 is a sectional view along the line 4-4 of Fig. 2, certain of the parts being in elevation.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings and particularly to Figs. 1 and 2, there is shown a main or supporting frame 10 on one end of which there is rigidly secured a bearing frame or carriage 11. The main frame 10 is

provided with three upwardly extending abutments preferably formed integrally therewith and disposed one on each side of the frame and the third disposed centrally of the remaining two. These abutments, shown in front elevation at 12 in Fig. 1, support the bearing frame 11 which is rigidly secured thereto as by means of the bolts 13. By this construction there are provided two openings or spaces between the bearing frame 11 and the upper surface of the main frame 10 for a purpose to be hereinafter described. The bearing frame 11 has mounted upon it two bearings 14 and 15 in which is rotatably supported a shaft 16 on one end of which is suitably secured an abrasive wheel 17 which will hereinafter be referred to as the grinding wheel. Upon the other end of the shaft 16 is mounted a driving pulley 18 adapted to be driven from the pulley 19 of a suitable variable speed electric motor 20 suitably mounted upon the interior of a side member of the main frame 10 so that the motor may be bodily moved in a vertical plane with respect to the grinding wheel driving pulley 18 to compensate for stretching and for properly tensioning the belt 21 connected thereto. Any suitable means may be provided for so adjusting the position of the motor. The motor 20 is thus substantially entirely encased within the frame 10 and is in a position to form no obstruction.

There is thus provided a rigid mounting for the grinding wheel 17 and it will be noted that the driving connection of the pulley 18 is so related to the grinding wheel 17 that the effect of the weight of the grinding wheel in overhanging the bearing supports of the shaft 16 is compensated for by the downward driving pull of the belt 21 acting upon the opposite end of the bearing supports. The upper portion of the main frame 10 is provided with suitable bearing surfaces 22 and 23 extending longitudinally thereof, the former being preferably in the form of a V-shaped way supported upon the main frame 10 and bearing upon the surfaces 23 and 23 is a movable carriage 24

having on its under side suitable bearing surfaces 22 and 23. The movable carriage 24 is thus provided with a guide 25 resting
5 in the way 22 for guiding the carriage 24 and for maintaining it in proper alignment throughout the range of movement which it may be given. The V-shaped way 22 and
10 the bearing surface 23 in the main frame 10 extend longitudinally of the frame and underneath the rigidly mounted bearing frame 11 and between the supporting abutments 12 therefor hereinbefore described. The carriage 24 has an extension or leg 26
15 throughout the extent of which the guide 25 is extended and is provided also with a corresponding extension or leg 27 whose bearing surface cooperates with the bearing surface 23 on the main frame 10. The legs
20 26 and 27 extend longitudinally of the main frame to an extent sufficient to insure the proper guiding of the carriage 24 throughout its movement and to insure also the proper distribution of the load on the carriage 24
25 to the main frame 10. The bearing frame 11 in being mounted upon the abutments 12 is thus raised above the bearing surfaces in the main frame 10 to a sufficient extent to permit the legs 26 and 27 to extend and
30 travel underneath the frame member 11. The latter and the movable carriage 24 may thus be said to bear a telescopic relation to one another.

The movable carriage 24 carries suitable
35 bearings 28 and 29 in which is mounted the shaft 30 of an abrasive wheel 31, hereinafter termed the regulating wheel, mounted at one end thereof and overhanging carriage 24 and the main frame 10 so as to be in operative
40 relation to the grinding wheel 17. A pulley 32 mounted upon the opposite end of the shaft 30 is adapted to be driven from the pulley 33 of a variable speed driving motor 34 mounted upon the interior of a
45 side member of the main frame 10 in any suitable manner to permit its adjustment vertically with respect to the shaft 30 to permit proper adjustment of the tension of the belt 35. The motor 34 is thus also entirely
50 encased within the main frame 10 and, like the driving motor 20, necessitates no additional floor space. Speed varying devices for motors 20 and 34 are indicated at 20^a and 34^a.

Turning now to the means for moving and adjusting the regulating wheel carriage 24, and referring particularly to Figs. 1 and 3 of the drawings, it will be seen that I provide an operating screw 36 rotatably mounted
60 in a bracket 37 rigidly secured to the main frame and held against longitudinal movement by means of a collar 38 mounted upon one side of the bearing bracket 37 and by means of the operating hand wheel 39,
65 mounted upon the other side of the bearing

bracket 37. The threaded portion of the adjusting member 36 is in threaded engagement with a bushing 40 suitably secured to and preferably threaded into the movable carriage 24. The latter is cored
70 out, as at 41, to accommodate the free end of the adjusting screw 36 throughout the range of movement of the carriage 24. As will be seen from Fig. 3, I prefer to position the V-shaped guiding member 25 and the
75 cooperating way 22 in the main frame adjacent the regulating wheel 31 so as to provide a positive guiding of the regulating wheel throughout its range of movement with the carriage 24. It will also be noted that I
80 prefer to position the adjusting or operating screw 36 similarly with respect to the regulating wheel 31 and that the adjusting screw 36 may engage the bushing 40 conveniently positioned in the V-shaped guiding member 25 so that the adjusting screw 36 may operate upon the carriage 24 in close
85 proximity to the regulating wheel 31 to insure a positive movement or adjustment thereof.

Considering now the means for supporting the rolls or work adapted to be operated upon by the abrasive wheels 17 and 31, it will be seen, having reference particularly to Fig. 4, that the movable carriage 24 is
90 provided with an extension or overhang 42 extending laterally between the two abrasive wheels and formed preferably integrally with the movable carriage 24. The extension 42 is supported adjacent its outer end by means of a bearing member 43 adjustably
95 mounted as by means of the cap screw 44 to a laterally extending bracket 45 suitably secured to the main frame 10, as by means of the cap screws 46. The overhang 42 is thus made movable with the carriage 24 and is supported at its exterior end to insure rigidity of construction during the operation and throughout its range of movement with
100 the carriage.

As will be seen in Figs. 1 and 4, the extension 42 is suitably recessed at its outermost end as at 47, the recess 47 being thus open at the extreme end of the overhang
105 42. Threaded into one of the abutments forming the lateral boundaries of the recess 47 is an adjusting screw 48 having a hand wheel 49 mounted upon its exterior end and having rigidly mounted at its interior end two suitably spaced collars 50 and 51, the parts being so arranged that the entire screw 48 with its collars 50 and 51 partakes of an axial movement when manipulated by means of the hand wheel 49.

The overhang 42 extending between the two abrasive wheels is adapted to support a carrier frame 52 having a downwardly extending plate 53 at its outer end adapted to cooperate with a downwardly extending
110 plate 54 integrally formed with the over-

hang 42 at its outer end for purposes of properly aligning and locking the carrier frame 52 with respect to one of the wheels. The carrier frame 52 has a pair of inwardly extending lugs 55 adapted to enter the recess 47 and adapted also to straddle the adjusting screw 48 between the collars 50 and 51 thereon. Thus, adjusting of the screw 48 by means of the hand wheel 49 will cause axial movement of the screw and the collars and will carry the carrier frame 52 throughout such range of movement. The carrier frame 52 may be locked to the overhang 42 when in its adjusted position by means of the cap screw 56 extending through a suitable slot 57 in the downwardly extending plate 53 and threaded into the extension 54 of the overhang 42.

The carrier frame 52 is provided with a pair of upwardly extending posts 58 and 59 sufficiently spaced apart so as to permit access of the abrasive wheels therebetween. The posts 58 and 59 support, as by means of the bolts 60, a work carrier 61 adapted to support the rolls or articles intended to be operated upon by the wheels and indicated as at 62. The work carrier 61 is of slightly less thickness than the diameter of the articles 62 so that the wheels 17 and 31 may operate upon the part supported upon the carrier 61 intermediate the supporting posts 58 and 59 in a manner to be hereinafter described.

In order to guide the rolls 62 on the carrier 61 and into engagement with the abrasive wheels, suitable guiding plates 63 are secured to each side of the carrier 61 and may conveniently be secured by means of the clamping bolts 60, as is indicated in Fig. 1. Similar guiding plates indicated at 64 in Fig. 2 may be similarly positioned with respect to a supporting post 59 to guide the rolls 62 as they leave the abrasive wheels and into a suitable trough 65 suitably secured to the carriage 24 as at 65^a.

Considering now the action of the abrasive wheels upon the parts intended to be ground, it will be seen in Fig. 3 that I prefer to give the axes of the two abrasive wheels 17 and 31 a fixed inclination with respect to one another. In Fig. 1 the axis of the regulating wheel 31 mounted upon the movable carriage 24 is inclined to a slight degree with respect to the axis of the grinding wheel 17 which is substantially horizontal. Assuming that the carrier 61, Fig. 4, is substantially horizontal and that therefore the path of travel of rolls 62 is similarly horizontal, there will be a relative inclination between the path of travel of the rolls 62 with respect to the path of the operating surface of the regulating wheel 31 so that the parts are positively fed along the carrier 61 by reason of the action of the regulating wheel 31. It will be understood that the

grinding wheel 17 is rotated at a relatively high speed and that its action upon the rolls 62 on the carrier 61 is in a downward direction, whereas the regulating wheel 31 is rotated at a relatively low speed and in such a direction that its action upon the rolls 62 is in an upward direction. The regulating wheel thus determines the rate of rotation of the parts on the carrier during the grinding action of the wheel 17 thereon. Under the conditions assumed, the parts or rolls 62 will be fed by reason of the fixed inclination at a definite rate past the wheels.

With the variable speed driving motors operating the respective abrasive wheels, the surface speed of the grinding wheel may readily be adjusted to give the desired grinding action and the speed of the regulating wheel 31 may similarly be readily adjusted to give the desired rate of rotation of the parts during the grinding action and also to vary the rate of feed of the parts during such action.

As seen in Fig. 4, the bolts 60 which secure the carrier 61 to the supporting posts 58 and 59 cooperate with the latter in suitable slots 66 whereby the carrier 61 may be given any desired degree of inclination with respect to the path of the operative surface of the regulating wheel 31 which, as before noted, is substantially fixed. The rate of feed of the parts or rolls 62 may thus be further varied by changing the inclination of the carrier 61 at will. It will be understood that the various adjustments are made with respect to one another in accordance with the character of the work operated upon and the material thereof, and it will be noted further that a high degree of flexibility of adjustment is attained to meet various requirements and that the several parts are readily adjusted for most efficient and accurate action.

The parts, after being operated upon by the abrasive wheels, are discharged from the carrier 61 into the trough 65 secured by means of the standard 65^b and the cap screws 65^a to the carriage 24, the trough 65 being of sufficient lateral extent so as to be in proper relation to the carrier 61 throughout the lateral adjustments of the carrier 61 relative to the carriage 24 as hereinbefore described. The parts are thereupon discharged from the trough 65 into a discharge-chute 67 rigidly secured to the depressed substantially central portion of the main frame, as by means of the cap screws 68, and sloping in a forward direction toward the front of the machine where the chute 67 extends through a suitable opening 70 in the main frame 10 positioned immediately above the tank 71 detachably secured to the front of the frame 10. The chute 67 is of sufficient cross-section and the main frame 10 is provided with an opening of correspondingly sufficient extent

(as indicated in Fig. 2) so that the trough 65 will be in operative relation to the chute 67 throughout the extent of the adjustments that may be given the carriage 24 and hence the trough 65, as hereinbefore described. The parts are thus discharged into the container 71 in which is preferably placed a suitable liquid for cushioning the drop of the parts as they fall into the tank.

The grinding wheel 17 and the regulating wheel 31 are enclosed in a suitable casing 72 suitably secured to the main frame 10 and in fixed relation with respect to the axis of the grinding wheel 17. As viewed in Fig. 1, it will be noted that the right-hand end of the casing 72, which end houses the regulating wheel 31, is made sufficiently large to permit the movement of the regulating wheel to take place within the casing throughout the desired range of adjustment. A suitable slot is provided through which the shaft of the regulating wheel extends to permit such range of movement to take place. Similarly, a suitable opening in the rear wall of the casing 72 is provided to accommodate the extension or overhang 42 together with the carrier frame 52 mounted thereon, and this opening is furthermore of sufficient extent to permit relative adjustment of the carrier frame 52 to take place with respect to the overhang 42. The front of the casing 72 is provided with suitable cover plates one for each wheel, there being only one shown in Fig. 1, the construction of the cover plate for the regulating wheel 31 being substantially identical. It will be seen that the cover plate 73 partially broken away in Fig. 1 is detachably secured to the casing 72 by means of a fixed latch 74 and a movable or detachable latch 75 of any suitable construction. Adjacent the carrier frame 52 the cover plate 73 is provided with an adjustable plate 76 slidably mounted on the cover plate 73 and adjustable with respect thereto by means of the slots 77 and the thumb screws 78. The sliding plate 76 may be positioned close to the carrier after proper adjustment of the latter with respect to the wheel so that the several parts are substantially entirely encased. A suitable pipe 79 connects the casing 72 with the tank 71 and a suitable pump (not shown) may be provided for circulating a cooling liquid from the pump to the operative surfaces of the abrasive wheels during their operation.

During operation upon rolls or parts of special design, and particularly of such parts having non-uniformly distributed exterior surfaces, the parts or rolls have a tendency to leave the carrier 61 during operation thereupon by the wheels and this action is generally manifested by a tendency for the parts to stand on end. Referring to Figs. 1 and 4, I have provided an adjustable bar 80 positioned immediately above the

carrier 61 so as to restrict the travel of the parts or rolls 62 to the desired path. The bar 80 is secured at each end to an adjustable mounting member 81 conveniently secured to the casing 72 as by means of the cap screws 82 cooperating in the slots 83 in the supporting members 81. The height of the bar 80 above the carrier 61 may thus be readily adjusted to conform to the diameter of the parts operated upon and furthermore it will be noted that each end of the bar 80 is independently adjustable so that the restricting bar 80 may be given any inclination to place it in substantial parallelism with the supporting surface of the work carrier 61.

The bar 80 may be formed to expose any desired extent of surface of contact to the parts operated upon and this surface of contact may, if desired, be curved to conform substantially to the curvature of the parts intended to be restricted to the desired path of travel. Furthermore, the adjustable mounting of the restricting bar 80 is such that the latter may be moved laterally about the supporting screws 82 as a pivot to conform to whatever relative adjustment of the carrier 61 is made with respect to the abrasive wheels.

It will be noted that the regulating wheel 31 is readily adjustable with respect to the grinding wheel 17 so that adjustment may readily be made for operation upon the parts of various diameters and also for taking up the wear of the wheels during operation upon parts of a given diameter. The wear on the grinding wheel 17 during the operation is materially greater than the wear on the regulating wheel 31 and it will be seen that proper adjustment of the carrier 61 with respect to the regulating wheel 31 having once been made, the adjustment of both these parts with respect to the grinding wheel to compensate for wear is made possible in an extremely simple manner. It will further be noted that there has been provided in this invention apparatus of great compactness of construction as well as of great flexibility of adjustment and operation and that the various objects, as well as others, together with many advantages have been achieved.

As many possible embodiments may be made of the above invention and as many changes may be made in the embodiment above set forth, it will be understood that the matter hereinbefore set forth is to be interpreted in an illustrative sense and not in a limited sense.

What I claim is:

1. In a machine for grinding rolls and the like, in combination, a main frame, a wheel mounted upon said frame, a carriage movably mounted upon said frame, a wheel mounted upon said carriage adapted to contact with said first wheel upon work posi-

tioned between the same, and a discharge chute adapted to receive work discharged from said wheels and directed to carry the work to a forward part of said main frame, said chute being connected with said carriage to move therewith.

2. In a machine for grinding rolls and the like, in combination, a main frame, a wheel mounted upon said frame, a carriage movably mounted upon said frame, a wheel mounted upon said carriage adapted to co-act with said first wheel upon work positioned between the same, and a discharge chute connected with said carriage to move therewith and adapted to receive work discharged from said wheels.

3. In a machine for grinding rolls and the like, in combination, a pair of wheels one of which is a grinding wheel, a work support adapted to support work of round section between said wheels and to hold the work against the thrust of one of said wheels, means adapted to drive said wheels in opposite direction with respect to said work support and at relative speeds adapted to effect simultaneous rotation and grinding of the work between said wheels, and means adapted to engage the upper surface of work upon said support when partially within the grip of said wheels.

4. In a machine for grinding rolls and the like, in combination, a pair of wheels, one of which is a grinding wheel, a work support positioned intermediate of said wheels and adapted to present thereto a succession of rolls, means adapted to drive said wheels in opposite directions with respect to said work support and at relative speeds adapted to effect simultaneous rotation and grinding of the rolls therebetween, means adapted to raise or lower said work support with respect to said wheels, means adapted to engage the upper surface of the rolls upon said support and to prevent their rising from said support as they enter and pass from the grip of said wheels, and means adapted to adjust said last-mentioned means with respect to the upper surface of said work support.

5. In a machine for grinding rolls and the like, in combination, a grinding wheel, a regulating wheel coacting therewith, a work support intermediate said wheels, said wheels being driven in opposite direction with respect to said work support, means adapted to vary the distance between said wheels, means adapted to vary the distance between said work support and each of said wheels, means adapted to adjust said work support vertically, and a device secured to the machine provided with a portion engaging the upper surface of the work adjacent the wheels and adjustable toward and away from the upper surface of the work support.

6. In a machine for grinding rolls and the like, in combination, a supporting frame, a wheel mounted upon said frame, a carriage slidably mounted upon said frame and having extensions telescoping into recesses in said frame under the shaft of said wheel, and a second wheel mounted upon said carriage, one of said wheels being a grinding wheel and the other wheel co-acting therewith upon work positioned between the wheels, a work-supporting device adapted to support work between said wheels and mounted upon said carriage, and means adapted to adjust the position thereof with respect to said carriage.

7. In a machine for grinding rolls and the like, in combination, a grinding wheel adapted to be rotated at relatively high speed, a regulating wheel rotatable at a relatively low speed, means for holding work of round section intermediate of said wheels, means for driving said wheels to present adjacent operative surfaces traveling in opposite directions, means adapted to permit adjustment of the rate of drive of said regulating wheel to adjust at will the rate of rotation of the work during the grinding action thereon by said grinding wheel, and means for predetermining at will the relative inclination between the path of travel of the operative surface of said regulating wheel and the path of travel of work along said work-holding means to predetermine the rate of feed of the work by said regulating wheel and along said work-holding means.

8. In a machine for grinding work of round section, in combination, a main frame, a grinding wheel and a regulating wheel operatively related to one another and supported by said frame, a carrier between said wheels for supporting round work therebetween, a carriage supporting said carrier and slidably mounted upon said main frame to permit adjustment of said carrier toward or away from one of said wheels, and a discharge chute adapted to receive work discharged from said wheels and directed to carry the work to a forward part of said frame, said chute being connected with said carriage to move therewith.

9. In a machine for grinding work of round section, means forming a grinding throat in which the work is received for simultaneous grinding and rotation comprising, in combination, a grinding wheel rotatable at relatively high speed, a regulating wheel rotatable at relatively low speed, said wheels being adapted to present adjacent operative surfaces traveling in opposite directions, a member for holding the work in operative relation to said two wheels and adapted to take up the thrust of the grinding wheel on the work, and means to hold the work parallel to said member.

10. In a machine for grinding work of round section, means forming a grinding throat in which the work is received for simultaneous grinding and rotation comprising, in combination, a grinding wheel rotatable at relatively high speed, a regulating wheel rotatable at relatively low speed, said wheels being adapted to present adjacent operative surfaces traveling in opposite directions, a member for holding the work in operative relation to said two wheels and adapted to take up the thrust of the grinding wheel on the work, and a member spaced from said first-mentioned member for taking up the oppositely directed thrust of the regulating wheel on the work.

11. In a machine for grinding work of round section, means forming a four-sided grinding throat in which work of round section is received for simultaneous grinding and rotation comprising, in combination, a grinding wheel rotatable at relatively high speed, a regulating wheel rotatable at relatively low speed, said wheels being adapted to present adjacent operative surfaces traveling in opposite directions and presenting also parallel lines of contact with the work positioned therebetween, said lines of contact being spaced in one plane, and a pair of spaced members between the operative surfaces of said two wheels and presenting parallel lines of contact with the work but spaced from one another in a plane at substantially right angles to said first-mentioned plane.

12. In a machine for grinding work of round section, means forming a four-sided grinding throat in which work of round section is received for simultaneous grinding and rotation comprising, in combination, a grinding wheel rotatable at relatively high speed, a regulating wheel rotatable at relatively low speed, said wheels being adapted to present adjacent operative surfaces traveling in opposite directions and presenting also parallel lines of contact with the work positioned therebetween, said lines of contact being spaced in one plane, a pair of spaced members between the operative surfaces of said two wheels and presenting parallel lines of contact with the work but spaced from one another in a plane at substantially right angles to said first-mentioned plane, and means for predetermining at will the relative spacing between said two wheels and between said two members.

13. In a machine for grinding work of round section, means forming a four-sided grinding throat in which work of round section is received for simultaneous grinding and rotation comprising, in combination, a grinding wheel rotatable at relatively high speed, a regulating wheel rotatable at relatively low speed, said wheels being adapted to present adjacent operative surfaces trav-

eling in opposite directions and presenting also lines of contact with the work positioned therebetween, said lines of contact being spaced in one plane, a pair of spaced members between the operative surfaces of said two wheels and presenting lines of contact with the work but spaced from one another in a plane at substantially right angles to said first-mentioned plane, means for moving one of the wheels toward or away from the other to predetermine the spacing therebetween, means for predetermining at will the relative spacing between said two spaced members, and means for moving said spaced members toward or away from one of said wheels to predetermine at will the position of both members relative to both wheels.

14. In a machine for grinding work of round section, means forming a four-sided grinding throat in which the work of round section is received for simultaneous grinding, rotation and feed, comprising, in combination, a grinding wheel rotatable at relatively high speed, a regulating wheel rotatable at relatively low speed, said wheels being adapted to present adjacent operative surfaces traveling in opposite directions, a pair of spaced members between said two wheels, one of which is adapted to take up the thrust of the grinding wheel upon the work and the other of which is adapted to take up the thrust of the regulating wheel upon the work, said members being adapted to predetermine the path of travel of the work relative to the adjacent operative surfaces of said two wheels, and means for predetermining at will the relative inclination between the path of travel of the operative surface of said regulating wheel and the path of travel of the work between said two members.

15. In a machine for grinding rolls and the like, in combination, a grinding wheel rotatable at relatively high speed, a regulating wheel rotatable at relatively low speed, said wheels being adapted to present adjacent operative surfaces traveling in opposite directions, a protective hood for substantially encasing one of said wheels, a member for holding work in operative relation to said two wheels and adapted to take up the thrust of the grinding wheel on the work, a second member spaced from said first member and adapted to take up the oppositely directed thrust of the regulating wheel on the work, and means supporting one of said members from said hood.

16. In a machine for grinding rolls and the like, in combination, a grinding wheel rotatable at relatively high speed, a regulating wheel rotatable at relatively low speed, said wheels being adapted to present adjacent operative surfaces traveling in opposite directions, a protective hood for substantially encasing one of said wheels, a member for

holding work in operative relation to said two wheels and adapted to take up the thrust of the grinding wheel on the work, a second member spaced from said first member and adapted to take up the oppositely directed thrust of the regulating wheel on the work, and means supporting one of said members from said hood, said means being adapted to permit predetermination at will of the spacing between said two members. 10

In testimony whereof, I have signed my name to this specification this seventh day of June 1921.

LEWIS R. HEIM.