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2,023,347

ROLL GRINDER FOR LEATHER DRESSING MACHINES AND THE LIKE

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3 Sheets-Sheet 1

Fig. 1

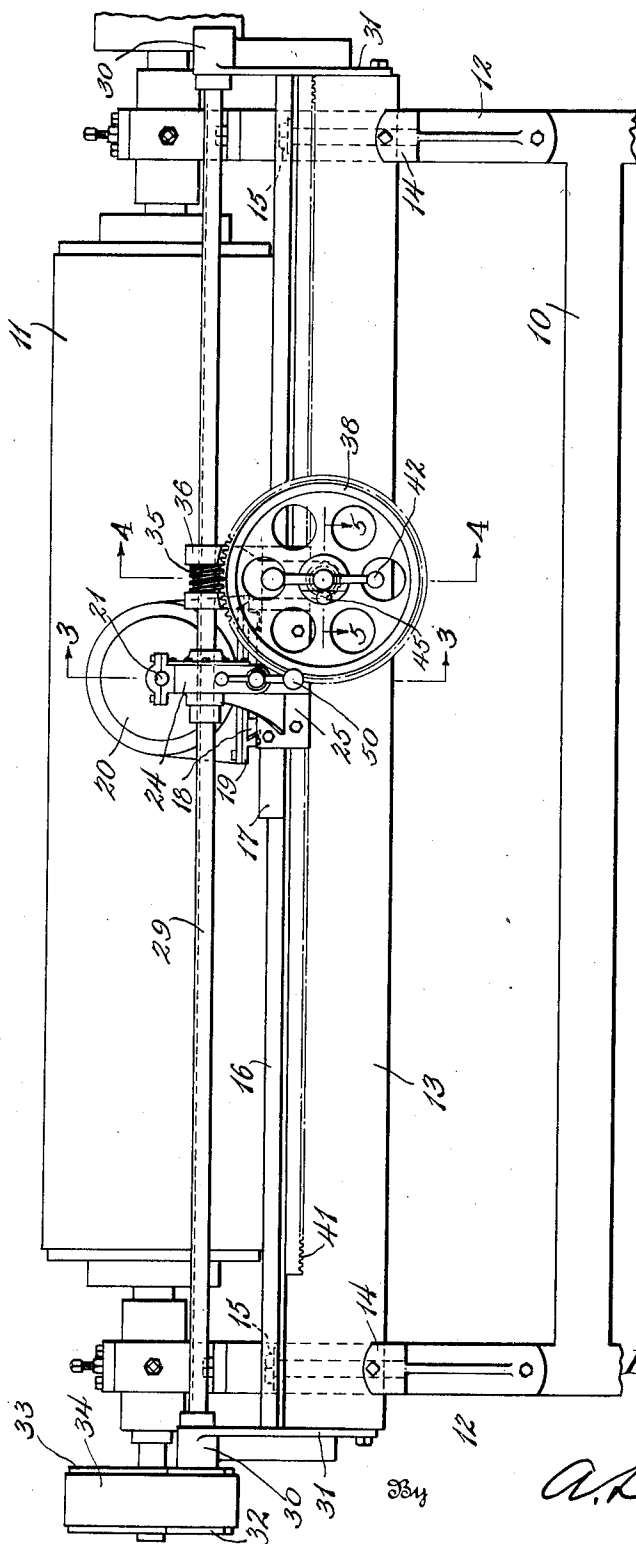
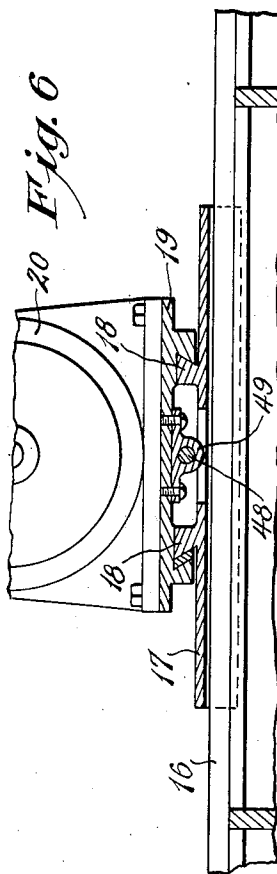


Fig. 6



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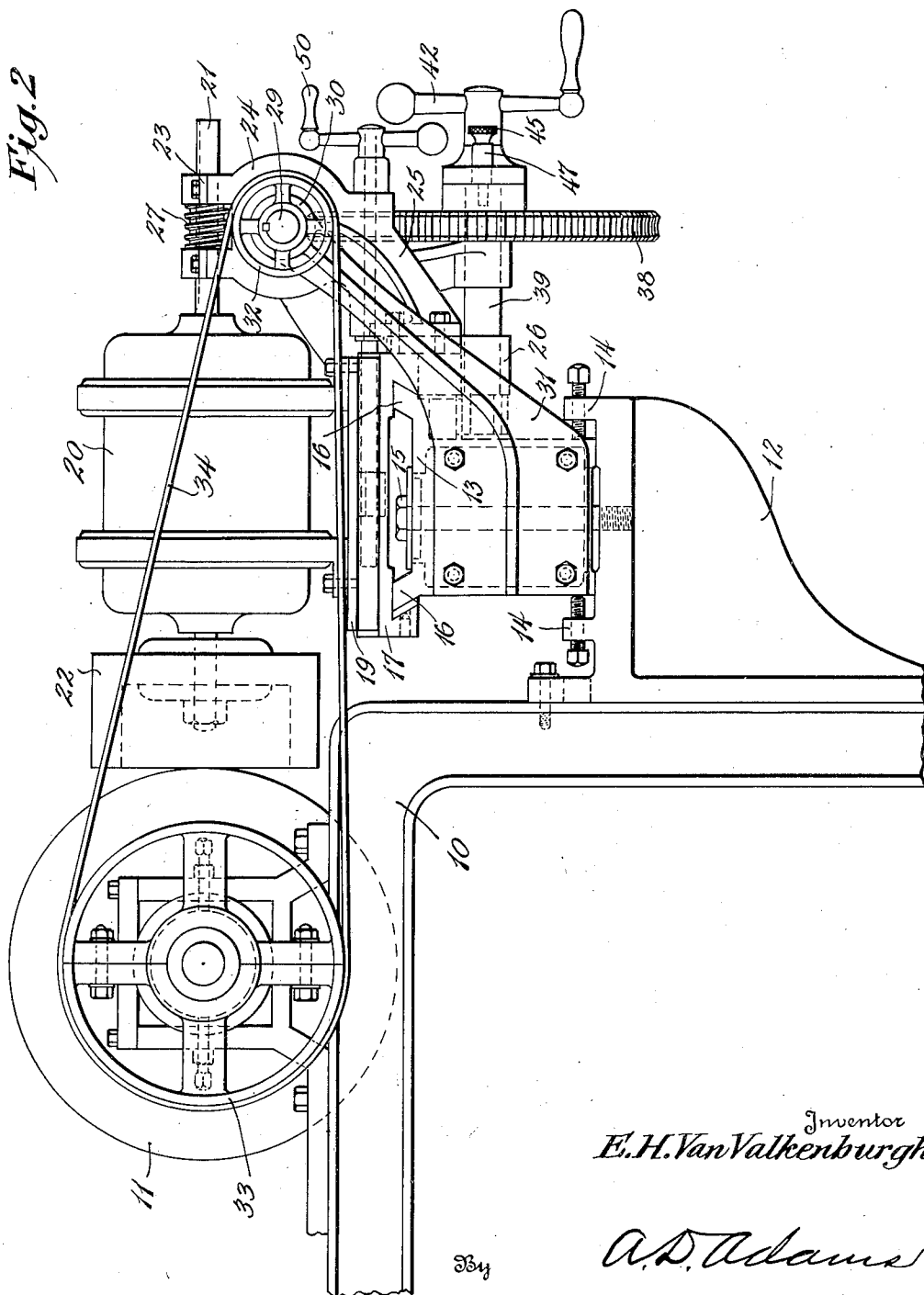
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3 Sheets-Sheet 2



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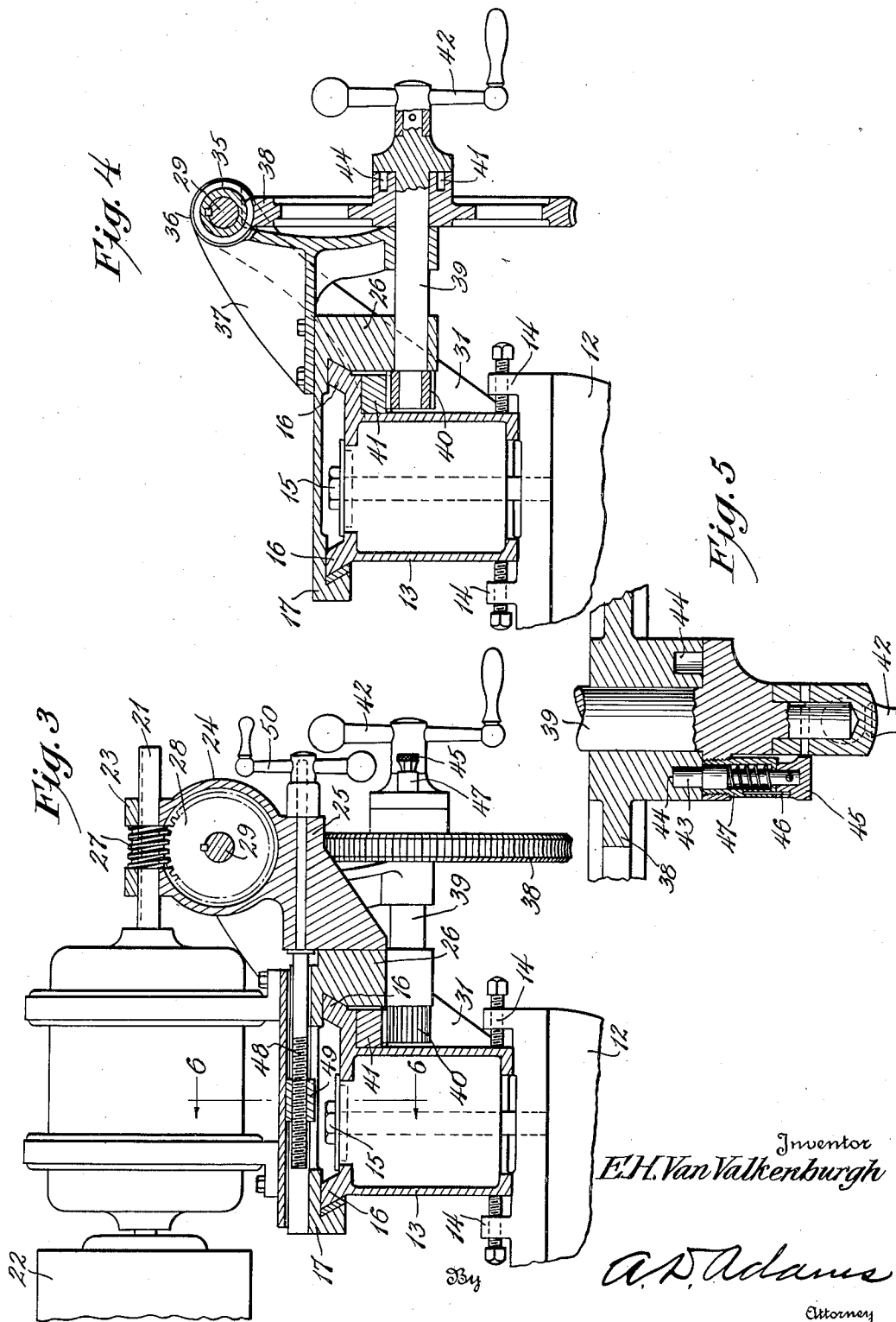
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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

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ROLL GRINDER FOR LEATHER DRESSING
MACHINES AND THE LIKE

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Application February 25, 1935, Serial No. 8,177

10 Claims. (Cl. 51—254)

This invention relates to roll grinders and, among other objects, aims to provide an improved grinding attachment adapted to be removably secured to the frame of a leather dressing machine of the general type shown in my Patent No. 1,983,585, dated December 11, 1934. The main idea is to provide a simplified, self-contained motor driven grinder which may be used on a battery of such dressing machines and which is effective to true up the rolls very rapidly and accurately without removing them from their bearings. Another important feature of the invention is the provision of means whereby the motor for driving the grinder is connected to feed the grinder longitudinally of the roll and also to rotate the roll at the proper speed while it is being ground or trued up.

Other aims and advantages of the invention will appear in the specification, when considered in connection with the accompanying drawings, wherein:

Fig. 1 is a rear elevation of a portion of a leather dressing machine having a grinder embodying the invention attached thereto;

Fig. 2 is an end view of the machine shown in Fig. 1 and shown on an enlarged scale;

Fig. 3 is a sectional view taken on the line 3—3 in Fig. 1;

Fig. 4 is another sectional view taken on the line 4—4 in Fig. 1;

Fig. 5 is a sectional view on an enlarged scale taken on the line 5—5 in Fig. 1; and

Fig. 6 is a sectional view taken on the line 6—6 in Fig. 3.

Referring more particularly to the drawings, the improved grinder is shown as being applied to a leather dressing or buffing machine 10 having a dressing roll 11 of the usual construction. In this instance, the machine is provided with brackets 12 removably secured to the rear legs of the supporting frame. It will be understood that these machines are operated usually in batteries and that each one is provided with brackets 12 so that a single grinding attachment may be used to serve all of them.

Herein, the grinding attachment is somewhat similar to a lathe. It includes a bed 13 which may be and preferably is similar to an ordinary lathe bed and it is adapted to be mounted on the brackets 12 between upstanding ears 14 and lined up by set screws, as best shown in Fig. 2, so that its ways are parallel with the axis of the roll to be ground. The bed is then adapted to be clamped in place by two or more vertical bolts 15 screwed into the brackets (Figs. 1 and 2).

Referring to Figs. 2 and 3, the lathe bed has the usual ways 16 on which a longitudinal carriage 17 is mounted. This carriage is adapted to move parallel with the axis of the roll 11 throughout its length.

Referring to Figs. 1, 3 and 6, the longitudinal carriage 17 has cross ways 18 on which a cross carriage 19 is mounted to slide back and forth at right angles to the axis of the roll or to the longitudinal ways. On this cross carriage a motor 20 is suitably secured and has an elongated shaft 21 extending through both ends and also at right angles to the axis of the roll. The forward end of the shaft 21 carries a special cup-shaped abrading wheel 22 whose annular working face is adapted to operate on the roll. This arrangement eliminates side thrust on the shaft bearing and also produces better finished work because the cutting speed of the grinding element is always the same, irrespective of its wear. Moreover, the surface of the wheel has line contact with the roll at two places, so that it dresses the roll uniformly. It is contemplated that the cup-shaped wheel may be made of any suitable abrading material.

In accordance with this invention, the grinder motor is connected to operate the longitudinal carriage to feed the wheel longitudinally of the roll and, also, to rotate the roll at the proper speed. For this purpose, the rear end of the shaft 21 is journaled in a bifurcated bearing 23 on the upper end of a housing 24 carried by a rearwardly extending bracket 25 which, in turn, is mounted on a vertical apron 26 on the carriage. A worm 27 is splined on the shaft 21 in the bifurcated bearing and meshes with a worm wheel 28 which is splined on a longitudinal shaft 29 extending longitudinally of the bed and journaled near its ends in bearings 30 supported on upstanding brackets 31, as best shown in Fig. 1. One end of this shaft carries a pulley 32 which is adapted to be alined with a special driving pulley 33 on the end of the roll shaft so that the roll may be driven by a belt 34 trained on said pulleys. It will be understood that the power drive for the roll is disconnected and that the reduction gearing between the motor and the roll is so designed as to drive the roll at the proper speed. The peripheral speed of the roll must be substantially constant and should have a definite ratio to the cutting speed of the abrading wheel in order to produce the best results.

The carriage feed is effected by means of a second reduction gearing including a worm 35 splined on the shaft 29 and mounted in a bifur-

cated bearing 36 on a bracket 37 secured to the longitudinal carriage 17, as best shown in Fig. 4. The worm meshes with the worm wheel 38 which is rotatably mounted on a feed shaft 39 journaled in a bearing at the lower end of the bracket 37 and extending through the apron 26. On the inner end of the feed shaft is a spur gear 40 meshing with the usual rack 41 on the bed. The end of the shaft has an operating handle 42 so that it may be manually operated. The worm wheel is adapted to be positively clutched to the shaft 39 by means of a spring-urged pin 43 adapted to engage any one of several recesses 44. The pin has a button 45 so that it may be pulled out and held out of engagement with the recesses when it is desired to feed the carriage manually. If desired, the clutch may be held disengaged by means of a small pin 46 secured to the button 45 and normally extending into a recess in a sleeve bearing member 45 carrying the spring-urged pin 43 (Fig. 5). When the button is pulled out and turned part of a round, the pin 46 will engage the outer end of the sleeve. The motor is preferably reversible so that the carriage will be fed automatically in either direction and thereby avoid the necessity of hand manipulation to return the main carriage to its starting position at one end.

To adjust the abrading wheel with respect to the work, the cross carriage 19 is adapted to be fed back and forth on the longitudinal carriage 17 by means of an ordinary screw 48 engaging a nut 49 under the cross carriage as shown in Figs. 3 and 6. One end of the screw extends through the bracket 25 and has an operating handle 50. Thus, the abrading wheel may be quickly adjusted at the beginning of an operation or to compensate for wear of the abrading wheel.

From the foregoing description, it will be seen that the novel grinding attachment is a self-driven unit which can be manufactured at a reasonable cost. It is easily applied to a leather dressing machine and requires no special skill to operate. It grinds a roll very accurately in its own bearings and avoids the trouble, loss of time and expense of removing it to be ground by a special machine. Moreover, a single grinding attachment of this type will serve a battery of any number of leather dressing machines and may be transferred from one machine to another by means of a crane or other suitable conveyor.

Obviously, the present invention is not restricted to the particular embodiment thereof herein shown and described. Moreover, it is not indispensable that all the features of the invention be used conjointly, since they may be employed advantageously in various combinations and sub-combinations.

What is claimed is:

1. In combination with a leather dressing machine having a cylindrical roll, brackets on the machine frame; a grinding attachment removably secured to said brackets and having provision to be aligned with the roll of said machine; said grinding attachment having a rotatable and longitudinally movable grinding wheel, a motor on the grinding attachment connected to drive the wheel; and means also connecting the motor to rotate the roll.

2. In combination with a leather dressing machine having a cylindrical roll, brackets on the machine frame; a bed removably mounted on said brackets and having ways adapted to be adjusted so that they are parallel with the axis of said roll; a carriage mounted on said ways; a motor

supported on said carriage and having a shaft extending at right angles toward said roll; a cup-shaped abrading wheel on said shaft; means connecting said motor to feed said carriage longitudinally on said ways; and means connecting the motor to rotate said roll, whereby the peripheral speed of the roll is always proportional to the speed of the abrading wheel.

3. In combination with a leather dressing machine having a cylindrical roll, brackets on the machine frame; a bed removably mounted on said brackets and having ways adapted to be adjusted so that they are parallel with the axis of said roll; a longitudinal carriage on said ways; a cross carriage on said longitudinal carriage; a motor on the cross carriage having a shaft extending at right angles toward said roll; a cup-shaped abrading wheel on said shaft; reduction gearing connecting the motor to feed said longitudinal carriage; means also connecting the motor to rotate said roll; and manual means for adjusting said cross carriage.

4. In combination with a leather dressing machine having a cylindrical roll, brackets on the machine frame; a bed removably mounted on said brackets and having ways adapted to be adjusted so that they are parallel with the axis of said roll; a longitudinal carriage on said ways; a cross carriage on said longitudinal carriage; a motor on the cross carriage having a shaft extending at right angles toward said roll; a cup-shaped abrading wheel on said shaft; reduction gearing connecting the motor to feed said longitudinal carriage; a clutch for disconnecting said reduction gearing from the carriage; manual means to operate the carriage when it is disconnected; reduction gearing also connecting the motor to rotate said roll; and manual means to adjust the cross carriage.

5. A roll grinder of the class described comprising, in combination, a longitudinal bed having means whereby it may be adjusted with respect to the roll; a carriage on the bed; motor driven abrading means on the carriage; and driving means connecting the motor to operate both the carriage and the roll.

6. A roll grinder of the class described comprising, in combination, a longitudinal bed having means whereby it may be adjusted with respect to the roll; a carriage on the bed; a motor carrying an abrading wheel mounted on the carriage; and reduction gearing connecting the motor to operate both the carriage and the roll whereby to maintain a definite ratio between the peripheral speed of the roll and the speed of the abrading wheel.

7. A roll grinder of the character described comprising, in combination, a self-contained motor driven unit having an abrading wheel adapted to be fed longitudinally of the roll; and means connecting the motor to feed the wheel and simultaneously rotate the roll so that the peripheral speed of the roll is always proportional to the speed of the abrading wheel.

8. A roll grinder of the character described comprising, in combination, a self-contained motor driven unit having a cup-shaped abrading wheel with its axis arranged normal to the axis of the roll; a carriage on which the motor and abrading wheel are supported; means connecting the motor to feed the carriage longitudinally of the roll; and reduction gearing connecting the motor to rotate the roll.

9. A roll grinder of the character described comprising, in combination, a bed adapted to be

secured to the machine on which the roll is mounted in parallel relation to the roll; set screws and bolts for adjusting and securing said bed in parallel relation; a carriage mounted on the bed;
5 a motor driven abrading wheel mounted on the carriage; means to adjust the wheel with respect to the roll; and driving connections between the motor, the carriage and the roll.

10 10. A roll grinding attachment for leather dressing machines comprising, in combination, a longitudinal bed; means for securing said bed in parallel relation with said roll; a longitudinal carriage guided on said bed; a cross carriage on the longitudinal carriage; a motor having a hous-

ing mounted on the cross carriage; a motor shaft projecting through opposite ends of the housing and having a cup-shaped abrading wheel secured to one end adjacent to the roll with its axis normal to the roll; reduction gearing connecting the opposite end of the motor shaft to feed the longitudinal carriage; a longitudinal shaft carried by said bed having a pulley adapted to be connected to drive said roll; reduction gearing connecting the motor to said longitudinal shaft; and 10 means whereby the abrading wheel may be adjusted with respect to the roll.

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