March 21, 1933. W. F. EVANS 1,902,629

DRUM TRUING MACHINE

Filed April 8, 1929 4 Sheets-Sheet 1

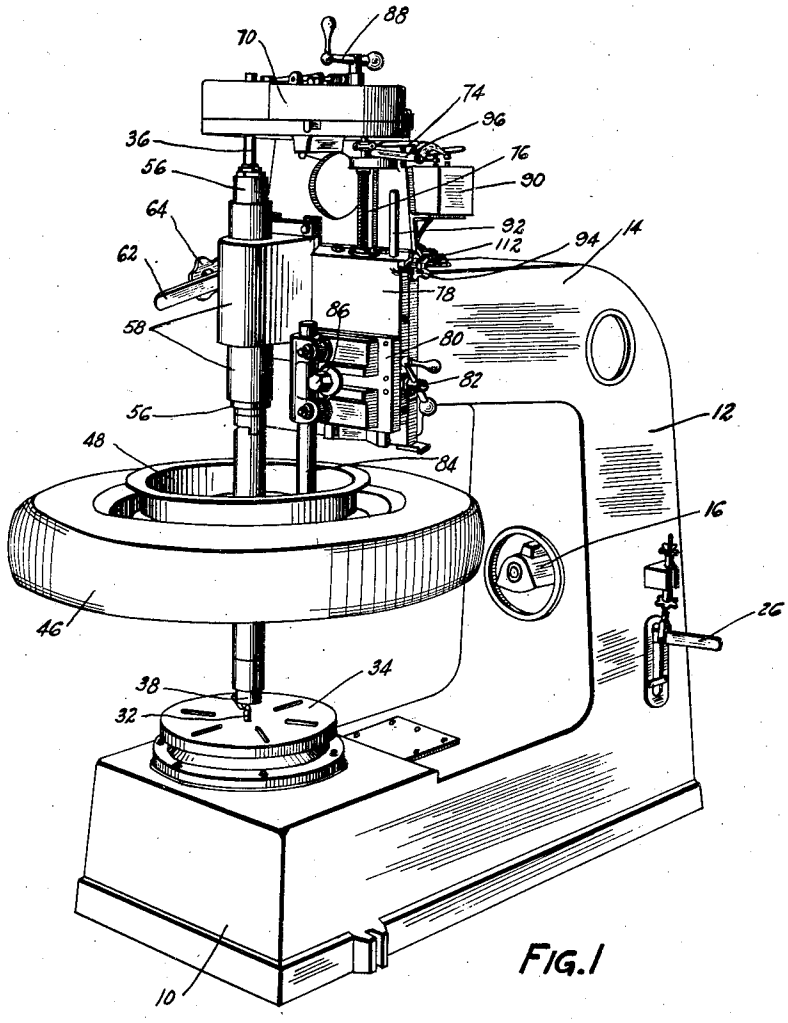


FIG. 1

INVENTOR
WILLIAM F. EVANS
BY
Jno. W. McConkey
ATTORNEY

March 21, 1933. W. F. EVANS 1,902,629

DRUM TRUING MACHINE

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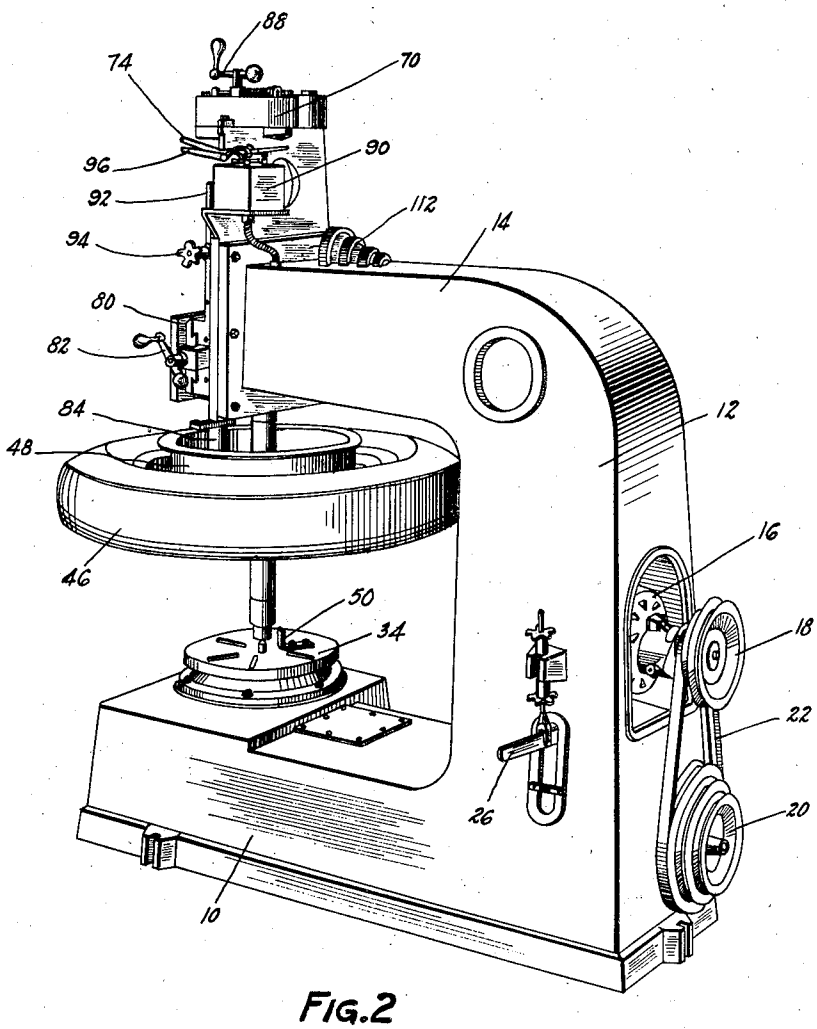


FIG. 2

INVENTOR
WILLIAM F. EVANS
BY
Jno. W. McCambridge
ATTORNEY

March 21, 1933. W. F. EVANS 1,902,629

DRUM TRUING MACHINE

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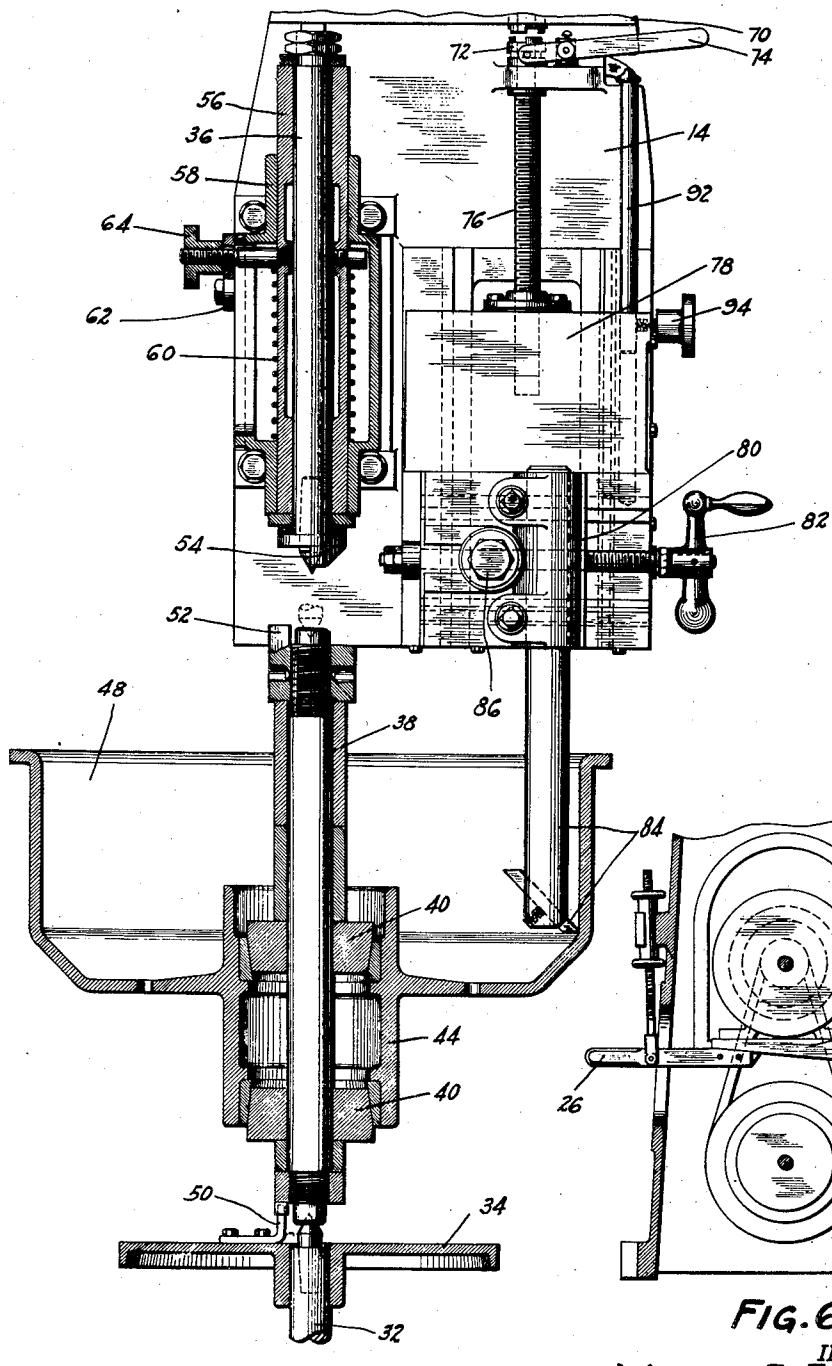


FIG. 3

FIG. 6

INVENTOR
WILLIAM F. EVANS
BY
Jno. W. McCanka
ATTORNEY

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DRUM TRUING MACHINE

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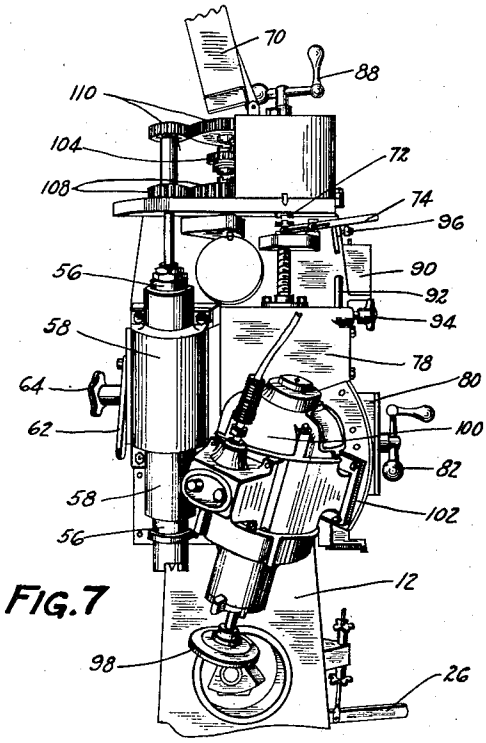


FIG. 7

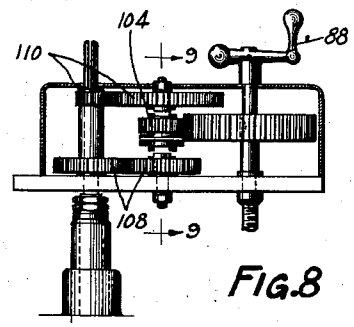


FIG. 8

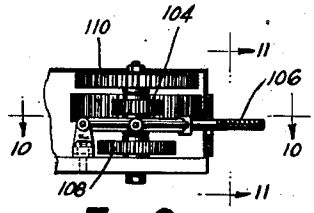


FIG. 9



FIG. 11

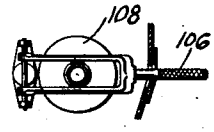


FIG. 10

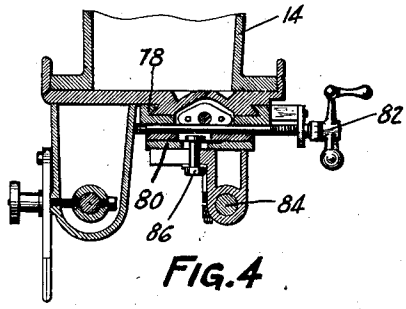


FIG. 4

FIG. 5

INVENTOR
WILLIAM F. EVANS
BY
Jno. W. McCambridge
ATTORNEY

Patented Mar. 21, 1933 1,902,629

UNITED STATES PATENT OFFICE

WILLIAM F. EVANS, OF SOUTH BEND, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO BENDIX AVIATION CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE

DRUM TRUING MACHINE

Application filed April 8, 1929. Serial No. 353,279.

This invention relates to machines for turning or grinding or otherwise truing brake drums, and has for its objects the provision of a simple and powerful machine which is capable of truing a drum without removing it from its wheel. Various features of novelty relate to the driving mechanism for the wheel and drum, to improved means for traversing the operating tool crosswise of the braking surface of the drum and preferably for throwing off the power at the end of the traversing movement, and to other novel combinations of parts and desirable particular constructions which will be apparent from the following description of the illustrative embodiment shown in the accompanying drawings, in which:

Figures 1 and 2 are perspectives of the machine, one showing the front and side and the other showing the side and rear;

Figure 3 is a vertical section through the upper part of the machine, showing part of the driving mechanism, and showing the mounting of the drum;

Figure 4 is a horizontal section illustrating the adjustment of the operating tool;

Figure 5 is a vertical section through the bottom of the machine, showing the motor mounting and part of the driving mechanism;

Figure 6 is a section on the line 6—6 of Figure 5, showing the belt drive from the motor;

Figure 7 is a perspective of the head of the machine, with a grinding tool substituted for a cutting tool;

Figure 8 is a section through the speed-changing gearing at the top of the machine of Figure 7;

Figure 9 is a section through this gearing on the line 9—9 of Figure 8;

Figure 10 is a partial section on the line 10—10 of Figure 9, showing the speed-changing lever; and

Figure 11 is a section on the line 11—11 of Figure 9, showing the means for holding the lever in any desired position.

In the arrangement illustrated, the machine includes a base 10, a pedestal 12, and an overhanging head 14, cast as a unit and made hollow to serve as a housing for part of the driving mechanism. The machine is driven by means such as an electric motor 16 within this housing, and operating stepped pulleys 18 and 20 connected by a belt 22 and driving a shaft 24 in the base 10. Belt 22 may be loosened to permit shifting it, by means of a handle 26 controlling the pivoted mounting 28 for motor 16.

Shaft 24 operates through a worm-and-gear reduction unit 30 to drive a vertical spindle 32 carrying a drive plate 34. Spindle 32, and an upper spindle 36 in alinement therewith, rotatably support a vertical arbor or intermediate spindle 38 having blocks 40 to seat in the bearing seats of the hub 44 of a wheel 46 having a brake drum 48. A bracket 50 on the drive plate 34 serves to drive the arbor 38 and the parts mounted thereon, while a projection 52 at the upper end of the arbor serves to drive the spindle 36 by engaging a corresponding projection 54 at the lower end thereof.

Spindle 36 is mounted in a vertically-movable slide 56 mounted in a guide 58 bolted to head 14, and which is urged upwardly, so that it is nearly balanced, by a spring 60. Slide 56 may be moved up and down by a handle 62, and clamped in any desired vertical position by tightening a nut 64, thus permitting the insertion and removal of arbor 38 with the wheel and brake drum.

The upper end of spindle 36 extends through a gear box 70 having a pivoted cover, as appears in Figure 7, and is splined therein to one of a set of reduction gears driving, through a clutch 72 controlled by a clutch lever 74, a vertical worm 76 operating a slide 78 on which is dovetailed a cross adjusting slide 80 operated by a hand worm 82 and carrying a cutting tool 84. Slide 80 can be clamped in adjusted position by tightening a nut 86. As shown in Figure 4, the slide 80 can also be reversed, for very small drums, thus increasing the range of adjustment.

In operation, the wheel and drum being in position, the operator first runs tool 84 to its lowermost position, adjacent the head of the brake drum, by turning a hand lever 88 to

drive worm 76. The tool is then adjusted outward, radially of the drum, by manipulating handle 82 until the tool is in cutting position in engagement with the drum. The motor is then started by closing a switch 90, whereupon the drum and wheel are rotated to cause tool 84 to make its cut, while at the same time worm 76 slowly traverses the tool upwardly across the braking surface of the drum and out of the drum.

The vertically-moving slide preferably carries a vertically-adjustable finger 92, held by a set-screw 94 which is arranged at such a height that when the tool has cleared the drum, this finger will rock a lever 96 to close the switch 90 and stop the motor, and at the same time will rock lever 74 to throw out the clutch 72.

As shown in Figure 7, a grinding wheel or tool 98, driven by its own individual motor 100, may be mounted on the slide 80 in place of the cutting tool 84. This tool, with its motor, is preferably mounted on an angularly-adjustable disk 102 carried by the slide 80. In this arrangement, also, there may be a speed-changing clutch and gear pinion device 104, operable by a handle 106 having three positions, as shown in Figure 11. In the lower position, spindle 36 drives the worm 76 through high-speed gears 108; in its intermediate position the spindle and worm are disconnected and the worm is readily operated by the handle 88; while in its highest position the spindle drives the worm through low-speed gears 110. In either gear arrangement, additional gears 112, seated in sockets on the top of the machine frame, may be provided for changing the ratios in the gearing connecting spindle 36 and worm 76, by taking out gears and substituting others.

While various illustrative specific constructions have been described in detail, it is not my intention to limit the scope of the invention to those particular constructions, or otherwise than by the terms of the appended claims.

I claim:

1. A machine comprising, in combination, a motor-driven wheel support, a spindle in alinement with said support and driven thereby through the wheel, a tool, and tool-traversing means driven by said spindle, together with adjusting means for shifting the tool at right angles to its direction of traverse.

2. A machine comprising, in combination, a pair of alined rotatable vertical spindles, wheel supporting means mounted between the spindles and separable therefrom, one of said spindles being power-driven and the other being driven from the first-mentioned spindle through the supporting means when the wheel is in place, a tool supported adjacent said wheel, and means driven by said other spindle and arranged to traverse said tool in a direction parallel to the axis of the wheel.

3. A machine comprising, in combination, a pair of alined rotatable verticle spindles arranged to support horizontally a wheel mounted between them, and one of which is power-driven and the other of which is driven thereby when the wheel is in place, a tool supported adjacent said wheel, and means driven by said other spindle and arranged to traverse said tool in a direction parallel to the axis of the wheel, said tool being adjustable in a direction at right angles to said axis.

4. A machine comprising, in combination, wheel-supporting and driving means including a rotated spindle, a tool having a carriage movable in a direction paralleling said spindle, a worm for shifting said carriage and which parallels said spindle, and gearing connecting the spindle and worm.

5. A machine comprising, in combination, wheel-supporting and driving means including a rotated spindle, a tool having a carriage movable in a direction paralleling said spindle, a worm for shifting said carriage and which parallels said spindle, and multiple-speed driving means connecting the spindle and worm.

6. A machine comprising, in combination, means for driving a wheel and brake drum, a tool, manually-operable means for bringing the tool into engagement with the braking surface of the drum adjacent the head of the drum, and means driven by the wheel-driving means for traversing the tool across said braking surface to true said surface and then withdraw the tool from the drum.

7. A machine comprising, in combination, means for rotating a brake drum, a tool, manually-operable means for bringing the tool into engagement with the braking surface of the drum adjacent the head of the drum, and power-driven means for traversing the tool across said braking surface to true said surface and then withdraw the tool from the drum.

8. A machine comprising, in combination, a motor having a controlling switch, means driven by the motor for rotating a brake drum, a tool movable into engagement with the braking surface of said drum adjacent the head of the drum, and means driven by said motor for traversing the tool across said surface and withdrawing it from the drum and for then operating said switch to stop the motor.

9. A machine comprising, in combination, a motor having a controlling switch, means driven by the motor for rotating a brake drum, a tool movable into engagement with the braking surface of said drum adjacent the head of the drum, and means driven by said motor, and including a clutch, for

traversing the tool across said surface and withdrawing it from the drum and for then operating said switch to stop the motor and simultaneously to throw out said clutch.

10. A machine comprising, in combination, means for supporting and rotating a brake drum, a tool movable into engagement with the braking surface of said drum, power-operated means including a clutch for traversing the tool across the braking surface and withdrawing it from said drum and for then throwing out the clutch.

11. A machine comprising, in combination, a motor having a controlling switch, means driven by the motor for rotating a brake drum, a tool movable into engagement with the braking surface of said drum adjacent the head of the drum, and means driven by said motor for traversing the tool across said surface and withdrawing it from the drum and for then operating said switch to stop the motor, said tool comprising a grinding wheel and a second motor for driving it.

In testimony whereof, I have hereunto signed my name.

WILLIAM F. EVANS.