July 11, 1933. A. Y. DODGE 1,918,020

BRAKE SHOE BURNISHER

Filed Jan. 27, 1930 3 Sheets-Sheet 1

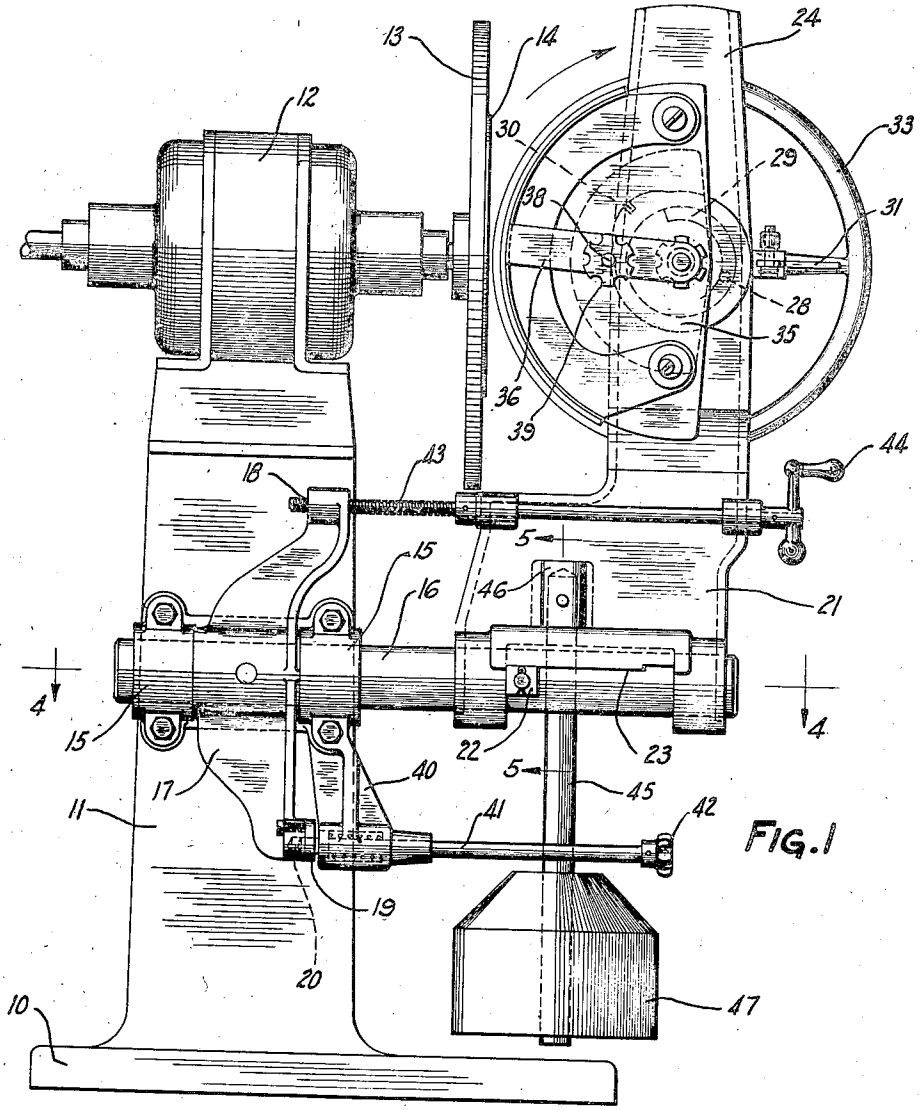


FIG. 1

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BRAKE SHOE BURNISHER

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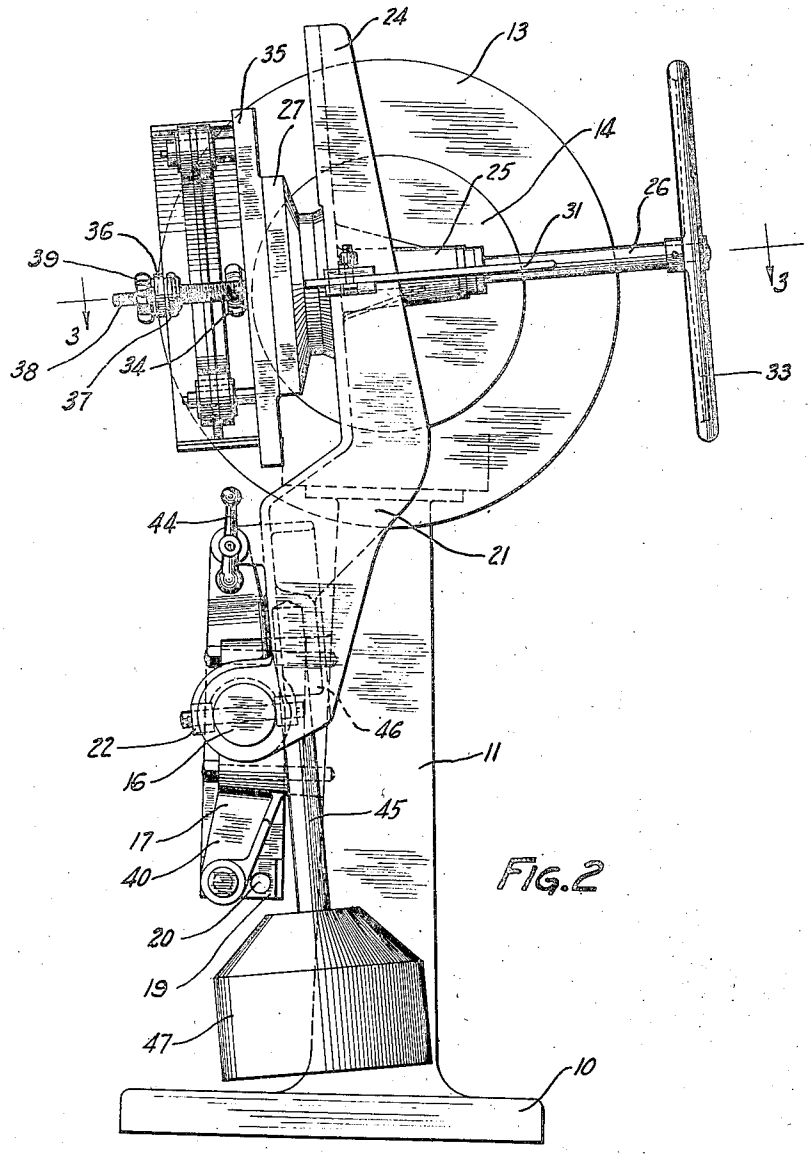


FIG. 2

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BRAKE SHOE BURNISHER

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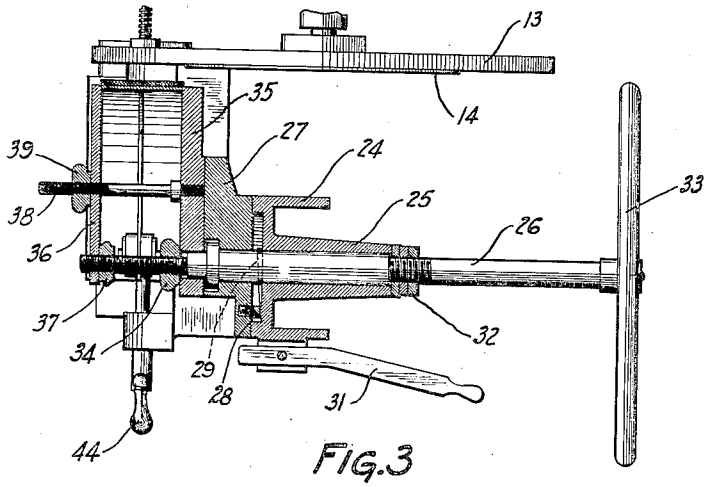


FIG. 3

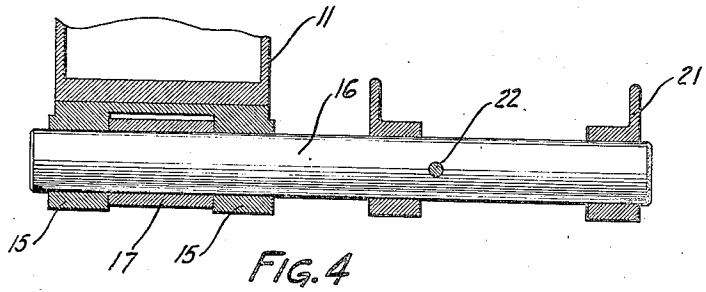


FIG. 4

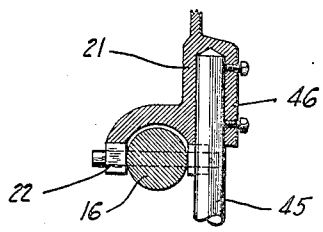


FIG. 5

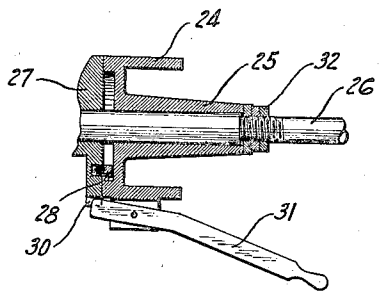


FIG. 6

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UNITED STATES PATENT OFFICE

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BRAKE SHOE BURNISHER

Application filed January 27, 1930. Serial No. 423,582.

This invention relates to grinding and burnishing machines and more particularly to machines for grinding and burnishing arcuate surfaces.

Heretofore, in burnishing arcuate surfaces and more particularly in burnishing brake shoe linings, it has been customary to place the shoe inside of a drum of the correct internal diameter. Such machines require considerable motive power for the operation thereof and they also require changing of the drum for the different sizes of shoes.

It is also old in the art to grind brake shoe linings with a disk grinder, but in such devices the grinding has generally been across the face of the shoe instead of along the face of the shoe or in parallel relation with respect to the face of the shoe. It is the aim of the present invention to overcome these objections.

An object of the invention is to provide a combined grinding and burnishing machine.

Another object of the invention is to provide a grinding and burnishing machine for brake shoe linings, wherein the shoe to which the lining is secured is held with the lining engaging the abrasive or burnishing element and the shoe is revolved about its own center of curvature.

Another object of the invention is to provide a machine for grinding and burnishing brake shoe linings, wherein the grain of grinding runs parallel with the length of the shoe.

Other objects of the invention will appear from the following description taken in connection with the drawings, which form a part of this specification, and in which:

Figure 1 is a side elevation;

Figure 2 is a front elevation;

Figure 3 is a sectional view substantially on line 3—3, Figure 2;

Figure 4 is a sectional view substantially on line 4—4, Figure 1;

Figure 5 is a detailed view illustrating the means for supporting the balance weight; and

Figure 6 is a detailed view illustrating the locking mechanism of the supporting member.

Referring to the drawings for more specific details of the invention, 10 represents a base on which is positioned a pedestal 11 supporting a motor 12. Keyed or otherwise secured on the shaft of the motor is a burnishing disk 13 having an abrasive disk 14 of a smaller diameter than the burnishing disk positioned centrally thereon.

Mounted for oscillation in suitably spaced journals 15 on one side of the pedestal 11 is a shaft 16. This shaft has secured thereon between the journals 15 a rocker arm 17, one end of which is tapped as indicated at 18 and the other end has secured thereto a hard steel plate 19, provided with two recesses 20 spaced horizontally from each other, the object of which will hereinafter appear.

Mounted for reciprocation on the shaft 16 is an arm 21 secured against oscillation or rotation by a bolt 22 extending diametrically through the shaft and having its respective ends positioned in a slot 23 in the arm. This arm has an offset portion 24 on which is positioned a boss 25 bored to receive a shaft 26 designed to be oscillated by the operator to bring all portions of the work into contact with the disks 13 and 14. As shown, the shaft 26 has mounted thereon and adapted to revolve therewith a collar 27 having a bearing against the offset portion 24 of the arm.

The collar 27 carries a spring pressed plunger 28 adapted to engage a cam surface 29 positioned in the face of the arm concentric with respect to the shaft 26. This cam permits rotation of the shaft in one direction and serves as a stop to limit rotation of the shaft in the reverse direction. It also functions as a stop to aline a slot 30 in the member 27 with a suitable hand operated dog 31 for locking the collar 27 and consequently the shaft 26 against rotation while the operator is removing and replacing shoes.

The shaft 26 is retained against longitudinal movement by the collar 27 bearing against the offset portion 24 of the arm and lock nuts 32 threaded on the shaft and bearing against the boss 25. Positioned on one end of the shaft 26 is a hand wheel 33 and the other end of the shaft is threaded to receive

a nut 34 for securing a segmental work holding plate 35 against the collar 27.

The segmental plate 35 is adapted to support a work piece which is secured in position by a flat bar 36, one end of which is bored to receive the shaft 26 and to bear against a nut 37 threaded thereon, and the other end of the bar engages the work piece and clamps it against the segmental plate. A screw 38 mounted in the plate 35 and provided with a hand nut 39 serves as the clamping medium. In order to adapt the machine to the treatment of larger or smaller brake shoes, it is only necessary to substitute a longer or shorter bar 36.

Formed integral with one of the journals 15 is an arm 40 having positioned thereon a spring pressed plunger 41 manually operated through a handle 42. This plunger is adapted to engage the recesses 20 in the plate 19 to lock the arm 21 against oscillation after the arm 21 has been shifted across the face of the grinding and burnishing disks to position the work piece in proper relation to the grinding or burnishing element.

A screw 43 is mounted for rotation on the arm 21. This screw is provided with the conventional handle 44 and is adapted to engage the tapped portion 18 of the rocker arm 17. By rotating the screw by means of the handle 44, the arm 21 may be reciprocated from or toward the grinding and burnishing disks to bring the work into engagement with whichever disk is selected by the operator.

The arm 21 has suspended therefrom a balance weight. As shown, a rod 45 has one end secured in a sleeve 46 formed upon the arm 21 and a weight 47 is positioned on the other end of the rod. This weight serves to balance the arm 21, so that it may be easily shifted across the faces of the abrasive and burnishing elements.

Assuming that a work piece is secured on the support and that the abrasive and burnishing disks are in rotation, the arm 21 is oscillated so that the work piece may be opposite either the abrasive disk or the burnishing disk. The arm 24 is then reciprocated through the screw 43 to bring the work piece into contact with either the abrasive or burnishing element, whereupon the hand wheel 33 is revolved to rotate the work piece against the abrasive or burnishing element. It is to be observed that both the grinding and burnishing elements move lengthwise of the work piece and not across the face thereof.

While the preferred embodiment of the invention has been described, it is to be understood that this is given merely as an example of the underlying principles of the invention and since these may be incorporated in other specific mechanical structures, I do not intend to be limited to structure shown except as such limitations are clearly imposed by the appended claims.

I claim:

1. A grinding and burnishing machine for finishing brake shoes comprising a rotary grinding and burnishing disk, a member rotatable parallel and slidable at right angles to the face of the disk, a support positioned on the member for rotation about an axis parallel to the disk, means on the support for securing the work piece, means for rotating the work piece and means for locking the support against oscillation.

2. A grinding and burnishing machine for finishing brake shoes comprising a rotary grinding and burnishing disk, a member mounted for oscillation across the face of the disk and for reciprocation from and toward the disk, a support positioned on the member and adapted to rotate about an axis parallel to the disk, means on the support for securing the work piece and means for rotating the support.

3. A grinding and burnishing machine for finishing brake shoes comprising a rotary grinding and burnishing disk, a member mounted for oscillation across the face of the disk and for reciprocation from and toward the disk, means for reciprocating the member, a support on the member, means on the support for securing the work piece and means for rotating the support on an axis parallel to the disk.

4. A grinding and burnishing machine for finishing brake shoes comprising a rotary grinding and burnishing disk, a member mounted for oscillation across the face of the disk, means for reciprocation of the member from and toward the disk, means for locking the member against oscillation, a support on the member, means on the support for securing the work piece and means for rotating the support on an axis parallel to the face of the disk.

5. A grinding and burnishing machine for finishing brake shoes comprising a rotary grinding and burnishing disk, a member mounted for oscillation across the face of the disk and for reciprocation from and toward the disk, means for locking the member against oscillation in a plurality of positions, means for reciprocating the member, a support on the member, means on the support for securing a work piece, means for rotating the support on an axis parallel to the face of the disk.

6. A grinding and burnishing machine for finishing brake shoes comprising a rotary grinding and burnishing disk, a member mounted for oscillation across the face of the disk and for reciprocation from and toward the disk, a balance weight for the member, means for locking the member against oscillation in a plurality of positions, means for

reciprocating the member, a support mounted for rotation on the member about an axis parallel to the face of the disk, means on the support for securing a work piece, a hand wheel for rotating the support.

7. A grinding and burnishing machine for finishing brake shoes comprising a rotary grinding and burnishing disk, a base, a shaft having its axis parallel with the disk axis mounted on the base and oscillatable with respect thereto, a frame slidable on the shaft, means preventing rotation of the frame relative to the shaft, a work support rotatively mounted in the frame, a stop for limiting rotation of the work support, and a projection on the shaft adapted to be engaged by a plunger slidably mounted on the base.

8. A grinding and burnishing machine for finishing brake shoes comprising a rotary grinding and burnishing disk, a base, a shaft having its axis parallel with the disk axis mounted on the base and oscillatable with respect thereto, a frame slidable on the shaft, means preventing rotation of the frame relative to the shaft, a work support rotatively mounted in the frame, a stop for limiting rotation of the work support, a projection on the shaft adapted to be engaged by a plunger slidably mounted on the base, and a counterbalance for the frame rigidly secured thereto.

In testimony whereof, I have hereunto signed my name.

ADIEL Y. DODGE.