

948,157.

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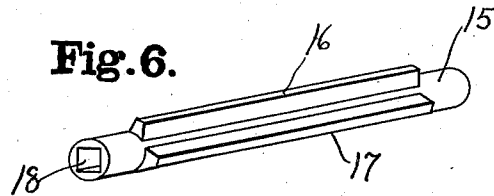
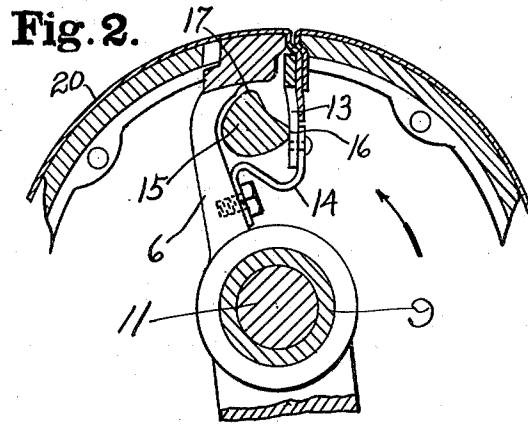
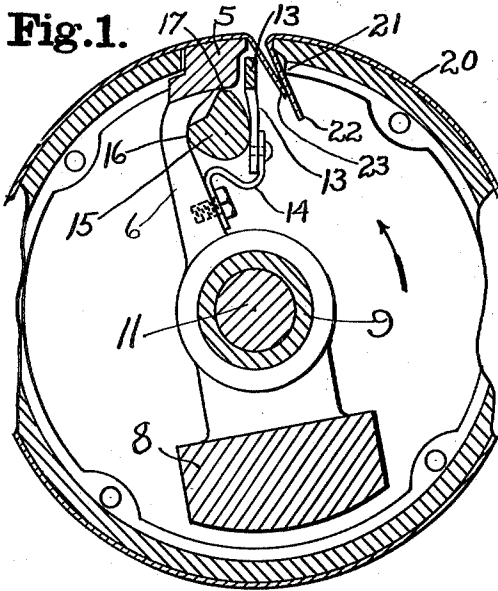


Fig. 5.

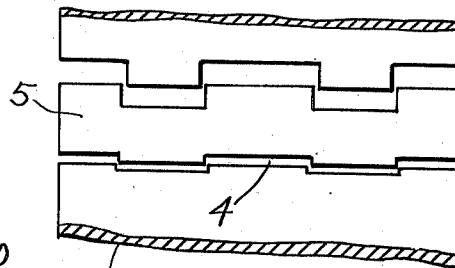
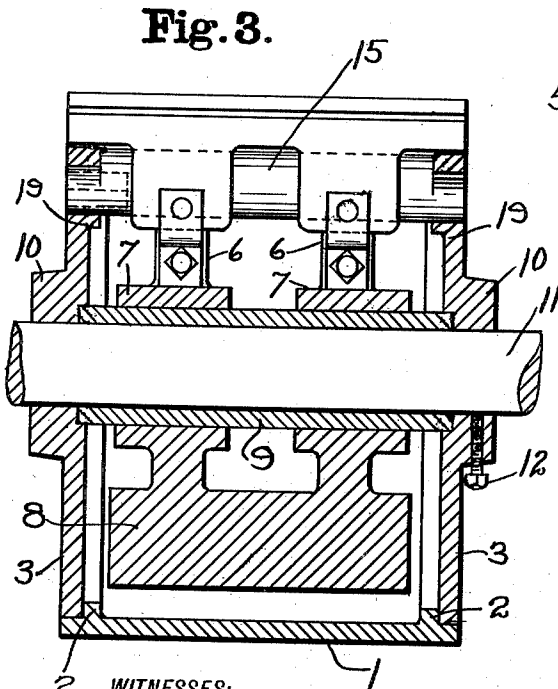
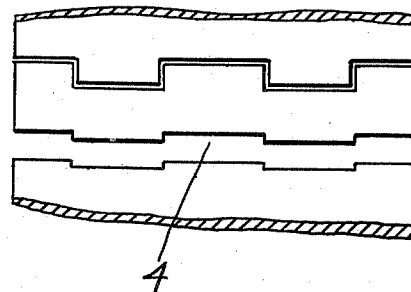


Fig. 4.



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SURFACING-ROLL.

948,157.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed May 13, 1909. Serial No. 495,663.

To all whom it may concern:

Be it known that I, ALEXANDER BEVAN, a citizen of the United States, residing at the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Surfacing-Rolls, of which the following is a specification, reference being had therein to the accompanying drawing.

The subject matter of this application relates to improvements in abrasive or polishing rolls, the object of which is to facilitate the attachment and removal of the abrasive or polishing material, and to make the roll simple in construction and effective in operation.

A further object of this invention is to provide a substantially continuous surface on the roll for supporting the abrasive material.

The manner of accomplishing these ends will be readily understood by reference to the following specification and accompanying drawings.

Figure 1—is an end elevation, partly in section, showing the jaws in open position. Fig. 2—is an end elevation, partly in section, showing the jaws in closed position. Fig. 3—is a side elevation of the roll partly in section. Fig. 4—is a plan view showing the outline of the tension jaw in its open position with relation to the slot in the roll. Fig. 5—is a plan view showing the outline of the tension jaw in its closed position. Fig. 6—is a perspective view of the cam-bar.

Referring to the drawings, 1 represents a cylindrical shell, having near each end an internal flange 2—2, which serves to stiffen the shell, and also serves as a bearing and attachment for the cylinder heads 3—3. Lengthwise of the cylindrical shell is an indented slot 4, within which the tension jaw 5 moves to draw the covering taut.

The tension jaw 5 corresponds in its superficial outline with the slot 4, in the periphery of the cylinder, and is mounted to oscillate about the cylinder axis in such a manner that its external surface moves in the peripheral surface of the cylinder. This jaw is supported by two arms 6—6 connected to hubs 7—7, which are mounted to rotate freely on the central tube 9, the ends of which are supported upon bearings within the hubs 10 of the heads 3. The shaft or

arbor 11 passes through this tube and the hubs of the cylinder heads, and may be secured to the roll by the set screw 12, or other suitable means. The weight of the jaw and operating mechanism is counterbalanced by the bar 8 located on the side of the cylinder opposite thereto. A second or auxiliary jaw 13 is attached to the arms 6—6 by means of S-shaped flat springs 14—14, said jaw being adapted to be operated to clamp the ends of the abrasive material within the cylinder. A single cam-bar 15, extending the entire length of the cylinder, is arranged to control the operation of both of these jaws, and is rotatably mounted upon suitable bearings provided in the cylinder heads. This bar is provided with two cams 16 and 17 located at approximately right angles to each other, which serve to operate the jaws 5 and 13 as the said bar is rotated forth and back. A square socket 18 in each end of this cam-bar permits the use of a key for rotating the same. Bosses 19—19 are cast on the inside of the cylinder heads to afford longer bearings for the ends of the cam-bar 15.

To secure the covering to the roll the cam-bar 15 is rotated to the position shown in Fig. 1, in which cam 16 rests against the arms 6, holding the tension jaw 5 in its open position; while the cam 17 is on the upper side of the bar 15, allowing the biting jaw 13 to also take the open position. The ends of the roll covering may now be inserted between the biting jaw 13 and the edge of the slot 4, as shown in Fig. 1. The cam-bar 15 is next turned to the right to throw the cam 17 against the biting jaw 13, causing the same to clamp and hold the ends 22 and 23 of the covering against the cut out portion of the inner edge 21 of the slot. When the cam-bar 15 has been rotated about one-quarter of a turn to the right the cam 17 will have been moved to its complete operative position against the jaw 13, while the cam 16 will have been moved out of contact with the arms 6, permitting the tension jaw 5 to move forward by the tension of the spring 14 to draw taut the roll covering, and close the break in the abrading or polishing surface, as shown in Fig. 2.

It will be noted that as cam 17 is turned to the right the upper end of the jaw 13 forces the ends of the roll covering 20 against the underside of the cylindrical shell, prevent-

ing further movement of this upper portion of jaw 13, but as the cam 17 is turned farther to the right, the increasing pressure of the said cam against the central portion of the jaw 13 forces the lower end of jaw 13 farther to the right and away from the arms 6, thus causing the bent springs 14—14 to exert a pull on the arms 6 to move the tension jaw 5 forward to close the break in the covering at slot 4. To release the covering the cam-bar is turned about one-quarter of a turn to the left, causing the cam 16 to force the tension jaw 5 back into open position, and at the same time causing the cam 17 to release the biting jaw 13 to return to open position. The open and closed positions of the jaws and cams are clearly indicated in Figs. 1 and 2. It will thus be seen that the ends of the roll covering are securely clamped and the covering drawn taut by a single movement of the cam bar 15, and the release of the covering is effected by a single reverse movement of the same. It will be evident also that the indented outline of the slot and tension jaw shown in Figs. 4 and 5 prevents the existence of a continuous longitudinal break in the bearing surface for the roll covering when the tension jaw moves forward to draw the covering taut. The above arrangement produces increased efficiency and prolongs the life of the abrasive or polishing material by preventing the vibration of "pounding," which occurs when work is held against a wheel or roll which does not afford a continuous surface throughout its periphery.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. An abrasive roll provided with a detachable covering, a biting jaw, a tension jaw, means for moving the biting jaw to bite and retain both ends of the said covering and means whereby said tension jaw may be subsequently moved by spring pressure to stretch the said covering around the roll.

2. An abrasive roll provided with a detachable covering, a biting jaw, a tension jaw, a cam for causing the biting jaw to engage and retain both ends of the said covering, and means whereby said tension jaw may be subsequently moved by spring pressure to stretch the said covering around the roll.

3. An abrasive roll provided with a detachable covering, said roll being provided with a longitudinal slot through its shell, a tension jaw extending through said slot flush with the surface of the shell, a biting jaw, means for causing said latter jaw to engage and retain both ends of the covering as it extends through said slot, and means whereby said tension jaw may be subsequently moved in said slot to stretch the said covering around the roll.

4. An abrasive roll provided with a detachable covering, said roll being provided with a longitudinal slot through its shell, a tension jaw extending through said slot flush with the surface of the shell, a biting jaw, a cam for causing said latter jaw to engage and retain both ends of the covering as it extends through said slot, and a spring for causing said tension jaw to subsequently move in said slot and stretch the covering around the roll.

5. An abrasive roll provided with a detachable covering, a biting jaw and a tension jaw, conjoined means whereby the biting jaw may be actuated to clamp the ends of the covering and the tension jaw released to stretch the said covering in one operation.

6. A polishing roll provided with a detachable covering, a tension jaw, a biting jaw flexibly connected to said tension jaw, means whereby the latter jaw may be caused to bite the ends of the roll covering and the former jaw caused to draw the covering taut.

7. An abrasive roll provided with a detachable covering, a tension jaw, a biting jaw yieldingly connected to said tension jaw, means whereby the force exerted to cause the latter jaw to bite the ends of the covering also causes the tension jaw to draw the covering taut.

8. A surfacing roll provided with an abrasive covering, a tension jaw mounted upon the roll shaft, a biting jaw flexibly connected to said former jaw, and a rotatable cam-bar whereby the said biting jaw may be actuated to hold the ends of the covering and the tension jaw released to produce tension on said covering.

9. A polishing wheel provided with a longitudinal slot laterally indented, a tension jaw having its external outline corresponding with said slot, a biting jaw adapted to hold the ends of the polishing material as they enter said slot, and means whereby a force applied to cause the biting jaw to hold the ends of the polishing material also causes the tension jaw to draw the covering taut.

10. In a surfacing roll, the combination of a cylinder having in its periphery a longitudinal slot laterally indented, a tension jaw corresponding in external outline with, and movable within, said slot, said jaw having its outer surface flush with the surface of the cylinder, a biting jaw flexibly attached to said tension jaw, conjoined means for actuating the biting jaw, and releasing the tension jaw to produce tension.

11. A surfacing roll comprising a detachable covering, a longitudinal slot in the roll periphery, a tension jaw movable within said slot and having its outer surface coincident with the roll surface, a biting jaw flexibly joined to said tension jaw, rotatable means whereby the biting jaw is actuated

to hold the ends of the covering, and the tension jaw is released to produce tension on the covering.

12. A surfacing roll comprising a detach-
5 able covering, a longitudinal slot in its peripheral surface, a tension jaw movable within said slot and having its external face flush with the roll surface, a biting jaw flexibly united to said tension jaw, and means
10 whereby the same force applied to cause the

biting jaw to hold the ends of the roll covering also causes the tension jaw to produce tension on the covering.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER BEVAN.

Witnesses:

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