No. 692,129. Patented Jan. 28, 1902.

D. R. FERGUSON & G. W. NIMON.

ROLL POLISHING APPARATUS.

(Application filed Oct. 9, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

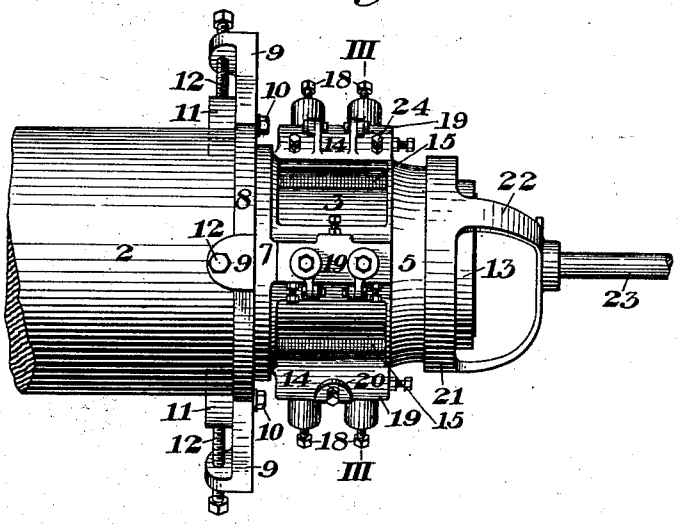
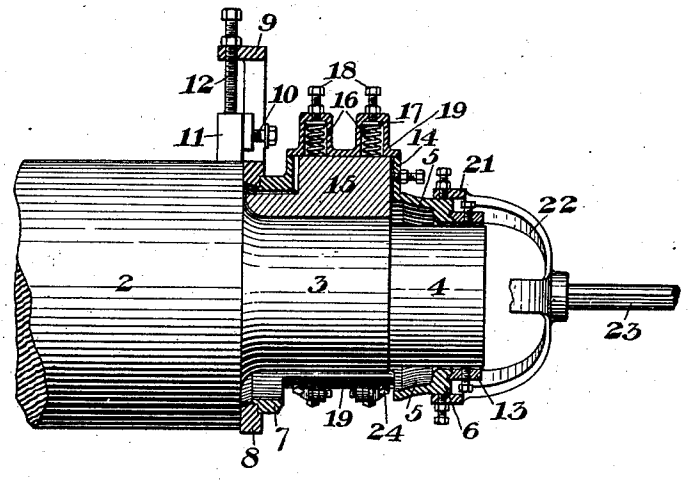


Fig. 2.



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Fig. 3.

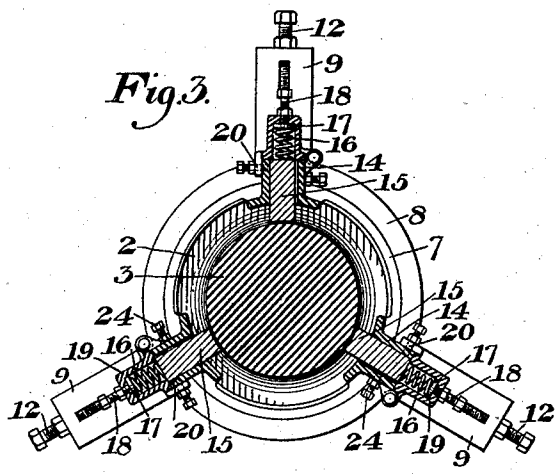


Fig. 4.

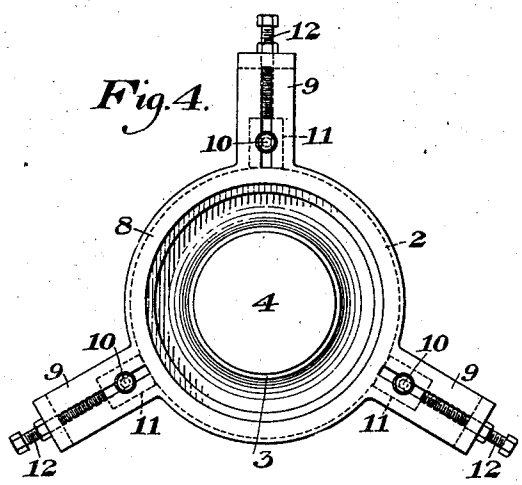
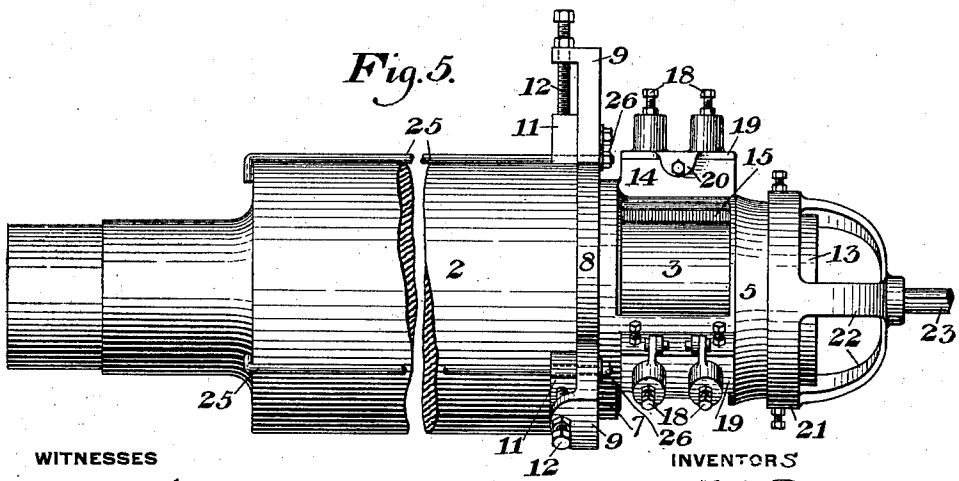


Fig. 5.



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UNITED STATES PATENT OFFICE.

DOUGALD R. FERGUSON, OF WILKINSBURG, AND GEORGE W. NIMON, OF PORT PERRY, PENNSYLVANIA.

ROLL-POLISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 692,129, dated January 28, 1902.

Application filed October 9, 1901. Serial No. 78,112. (No model.)

To all whom it may concern:

Be it known that we, DOUGALD R. FERGUSON, of Wilkinsburg, and GEORGE W. NIMON, of Port Perry, Allegheny county, Pennsylvania, have invented a new and useful Roll-Polishing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation showing our improved apparatus in position for polishing the neck of a roll. Fig. 2 is a similar view, partly in longitudinal section. Fig. 3 is a cross-section on the line III III of Fig. 1 looking toward the left. Fig. 4 is an end elevation of the centering-ring, and Fig. 5 is a side elevation showing the attaching of the device to an unfinished roll.

Our invention relates to the polishing of the necks of rolls for rolling metal or other material and is designed to provide a simple and inexpensive device which may be applied to and used to polish the roll-neck before the roll is inserted in the housings. Heretofore the polishing action has been accomplished by putting the rolls in place in the housings and driving them to gradually impart a polish to their necks; but this operation takes a considerable length of time, during which a large amount of power must be used to drive the rolls and great quantities of oil must be fed to the necks. The operation has therefore been an expensive one both in actual expenditure of material and power and also by reason of the loss of time, as no material can be rolled until the roll-necks are polished. Our invention overcomes all these difficulties and enables the polishing of the necks to be done quickly and cheaply before the rolls are put in the housings.

In the drawings, in which we show a preferred form of our apparatus, referring to Figs. 1 to 4, inclusive, 2 represents the body, 3 the neck, and 4 the reduced end, of a roll for rolling metals. The carrier 5 for the polishers consists of a sleeve having end guide-rings 6 and 7, which engage a centering-ring and a collar, respectively, and by means of which the polisher-carrier is centered and properly positioned and also guided during its rotation. The ring 7 of the carrier is recessed to engage corresponding shoulders and recesses in the centering-ring 8, which is secured to the roll-body. This ring 8 is provided with radial bracket-arms 9, projecting outwardly, and each arm is radially slotted for a securing-bolt 10, arranged to clamp the centering-block 11. This centering-block in each arm may be adjusted by a screw-bolt 12, extending through a screw-threaded hole in the bracket and bearing on the outer face of such block. The collar 13, which is clamped to the outer end of the reduced portion 4 of the roll-neck, has an interfitting groove-and-ring connection with the ring 6 of the buffer-carrier 5. This collar 13 may be secured to the part 4 of the roll by set-screws or other clamping means, and when it and the ring 8 are secured in place the buffer-carrier is thus provided with supporting-bearings at each end and is centered, so that its axis coincides with the axis of the roll. The intermediate portion of the buffer-carrier 5 may be cut out, leaving slotted connecting-bars having projecting casings 14, in each of which is mounted a polisher 15, which is preferably of the shape shown in Fig. 2. A yielding inward pressure is imparted to the polishers by means of springs 16, interposed between the end washers 17, of which the inner ones bear upon the buffer-block, while the outer ones are engaged by adjustable set-screws 18, mounted in a hinged bracket 19 on casing 14. The bracket when set in operative position to exert the yielding pressure on the buffer may be locked or held in such position by any latch device, such as shown at 20 in Fig. 3. To impart rotation to the buffer-carrier, we provide the ring 21, which is secured to its outer part and is connected by bracket-arms 22 with an axial shaft 23, which may be rotated by hand or by mechanical connections, as desired.

In using the invention the centering-rings 8 and 13 are secured upon the roll with the buffer-carrier between them in the position shown in Fig. 2, the pressure is applied to the buffer-blocks, whose inner faces are provided with emery or other polishing material, and the buffers are then rotated about the neck. The neck is thus given a high polish

with the expenditure of little power and in a very short time. When the polishing has been completed and before the buffer-carrier is drawn endwise from the roll, we preferably clamp the buffer-blocks by means of set-screws 24 in order to prevent their being pushed inwardly by the springs when the device is drawn off. When applied to the next roll, these set-screws are released and the spring-pressure thus applied.

In order to provide for applying the device to the rolls which have not yet been turned up and in which the blocks 11 would therefore not properly clamp the guide-ring, we may employ the hooked rods 25. (Shown in Fig. 5.) These rods extend through holes in the brackets 9, the blocks 11 being suitably notched to receive them, and when they are drawn up by means of nuts 26 they will clamp the device in place and hold it properly where the blocks would bear upon a beveled end portion and could not properly secure the device.

The advantages of our invention result from the great saving both in loss of time during which a mill cannot be used and in the amount of power and materials consumed during the polishing of the rolls as heretofore carried out.

The device is simple, easily applied, and in practice is found to perform its work successfully.

Many variations may be made in the form and arrangement of the device and its parts and in the means for positioning it upon the rolls without departing from our invention.

We claim—

1. A device for polishing roll-necks comprising a holder or carrier, a buffer supported thereon, and mechanism arranged to support the carrier upon the neck of a roll, and independently of outside support; substantially as described.

2. A device for polishing roll-necks, comprising an annular buffer holder or carrier, end guide-rings arranged to engage the carrier, and mechanism for clamping the guide-rings upon a roll-neck; substantially as described.

3. A device for polishing roll-necks comprising a rotatable buffer-support, having yieldingly-pressed polishers, guide-rings arranged to engage the holder, and mechanism for clamping the rings upon the roll-neck; substantially as described.

4. A device for polishing roll-necks, comprising a rotatable annular holder having radially-movable buffers, mechanism for exerting an inward pressure upon the buffers, a guide-ring engaging the inner end of the carrier, mechanism for centering the guide-ring upon the roll, and a connection for rotating the carrier; substantially as described.

5. A device for polishing roll-necks, comprising an annular rotatory polisher-holder, having spring-pressed polishers, an inner guide-ring engaging the inner end of the holder, and having mechanism for centering and clamping it to the roll, an outer guiding-ring engaging the outer end of the holder, and arranged to be clamped to the end portion of the roll-neck, and a connection for rotating the polisher-holder; substantially as described.

In testimony whereof we have hereunto set our hands.

DOUGALD R. FERGUSON.
GEORGE W. NIMON.

Witnesses:
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FRANK A. POWER.