

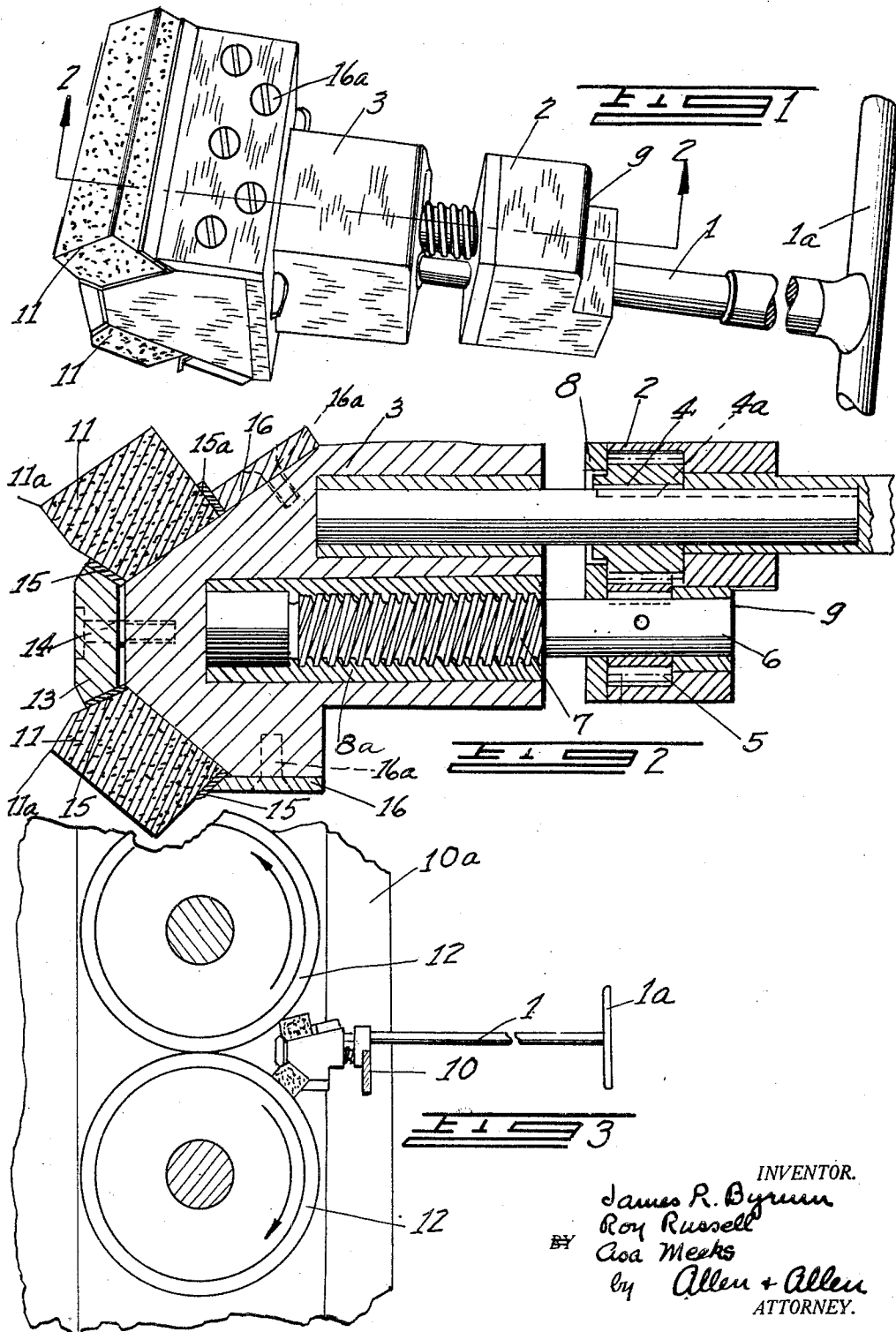
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ROLL POLISHING DEVICE

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ROLL-POLISHING DEVICE

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Our invention relates to roll polishing devices similar to those used for re-surfacing and polishing the rolls of sheet metal mills.

The present roll polishing devices now in use are limited in adjustment, and it is difficult to obtain a smooth surface on the rolls with them. They are in general very cumbersome and not easily handled or transferred from one set of mills to another. Another disadvantage of the present devices is that they are placed in such a position on the mill that any chips of abrasive or material polished from the roll will be in danger of passing between the two rolls while polishing is in progress. This, of course, places the rolls liable to fracture on the surface, and these chips are very often ground into the surface of the rolls which are thereby pitted and blemished. This prolongs the polishing operation in any event, and may work a serious injury to the rolls.

It is the object of our invention to provide a light, portable polishing device that may be readily and easily moved across the rolls during the polishing operation, and which will be easy to transfer from one set of mills to another.

It is an object of our invention to provide a polishing and grinding device which is accurately adjustable to the work and which will do a precision job.

Another object of our invention is to provide a system of reduction gears which make it possible to apply any desired pressure on the surface of the rolls, the device being so constructed that the desired pressure can be applied with little effort on the part of the operator.

It is also our object to overcome the clogging of the pores of the abrasive stone with grease, metal and grit through a regulation of the pressure on the surface of the rolls. Regulation of the pressure makes it easy to cleanse the surface of the abrasive blocks because the grease, metal or grit will not be

deeply embedded within the pores of the abrasive block.

It is a further object to provide a device constructed in such a manner that all movable parts are fully protected from dirt or grit, and in which the wear on all movable parts has been reduced to a minimum.

We accomplish our objects by a construction and arrangement of parts of which we shall now describe a preferred embodiment, reference being had to the drawings forming part of these specifications.

In the drawings:—

Figure 1 is a perspective of our roll polishing device.

Figure 2 is a section through our device taken on the line 2—2 of Figure 1.

Figure 3 is a diagram showing the application of the device to a pair of rolls.

The entire polishing device is supported on the end of a shaft 1 which passes through and is journaled in the gear housing 2 and also journaled in the separate abrasive chuck housing block 3. On this shaft 1 is a spur gear 4 which is keyed to the shaft 1 by the key 4a and rotated by the said shaft. This spur gear 4 in turn meshes with another spur gear 5 which in turn is pinned to the end of another shaft 6 extending from the worm 7 and journaled in the gear housing. Both gears 4 and 5 are free to rotate within the gear housing 2 and are kept from lateral movement relative to the gear housing by a plate 8. When the handle is rotated the gear 4 rotates the gear 5 which in turn causes the worm 7 to rotate and move the abrasive block chuck 3 away from or towards the gear housing, depending on the direction of rotation.

The male threaded worm 7 is free to rotate in a female threaded bushing 8 which is fixed in the abrasive chuck housing block 3. Turning the handle rotates the worm 7 which advances in or out of the female threaded bushing 8 and causes the abrasive chuck housing block 7 to move in a similar manner.

When placing the polishing device in position for polishing on a roll we place the offset portion 9 on the gear housing over and across a bar 10 on the mill frame 10a. This bar acts as a stop and also a guide for advancing the abrasive chuck housing block up to the rolls and parallel to the axis of the rolls. After placing the gear housing over this cross bar we turn the shaft 1 by means of the handle 1a which turning movement causes the abrasive blocks 11 to come in contact with the surface of the rolls 12 as indicated in Figure 2. The polishing device is placed in a position on the outlet side of the mill so that the rotation of the rolls 12 is in a direction toward the polishing device. Rotating the rolls 12 in this manner will cause all material to be thrown off and kept from passing between the rolls.

In order to firmly secure the abrasive blocks to the chuck we have provided a front wedge 13 which is held in place on the chuck by means of the screws 14. Between the abrasive block and the wedge 13 are soft metal shims 15 which, when the abrasive block is forced against them by means of the back clamps 16, will clamp and keep the abrasive blocks from being dislodged from a rigid position. There is a second set of soft metal shims 15a at the rear of the abrasive block and between the clamp 16, which are held in place by the screws 16a. These shims, since they are of soft metal, will be forced into the pores of the abrasive block and will have the same gripping effect as a knurled surface. The abrasive blocks 11 are shaped, as shown in the drawings, so that a minimum surface at their points 11a will be in contact with the roll surface and hence produce a smoother surface throughout.

To apply our device to any set of rolls we merely place the recess 9 over and across a bar on the mill, then turn the handle until the abrasive blocks are advanced into position on the surface of the rolls, and then move the device to and fro along the bar 10. The rolls are rotated and the abrasive blocks are left in contact point for point on the rolls successively until the device has moved completely across and polished the entire surfaces of the rolls. When the rolls have been completely polished all that is necessary to remove our device is to turn the handle in the proper direction and bring the abrasive blocks away from the contact of the roll surfaces and lift our device out of that position.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

In a roll polishing device an operating handle, and a divided body, one of said body divisions comprising a grinding or polishing head, the other of said divisions comprising a support-engaging member, and means operatively connected with said handle for separating or approaching said divisions, said means comprising a screw member whereby the separation may be made gradually and positively against pressure, said screw member separated from said operating handle, but connected therewith by gears, both journaled positively against pressure, said screw member operating in a threaded portion of said first division.

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