S. HITCHINGS.

POLISHING APPARATUS FOR TIN OR SHEET MILLS.

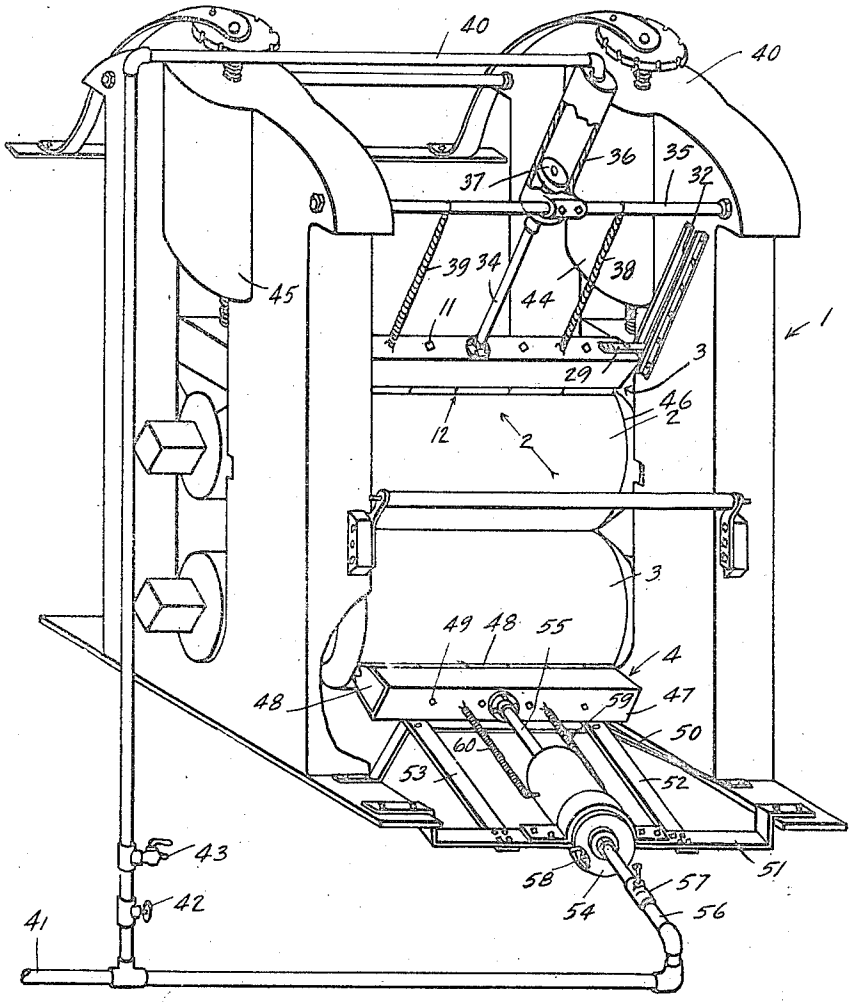
APPLICATION FILED SEPT. 19, 1918.

1,301,440.

Patented Apr. 22, 1919.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESS:

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2 SHEETS—SHEET 2.

Fig. 2

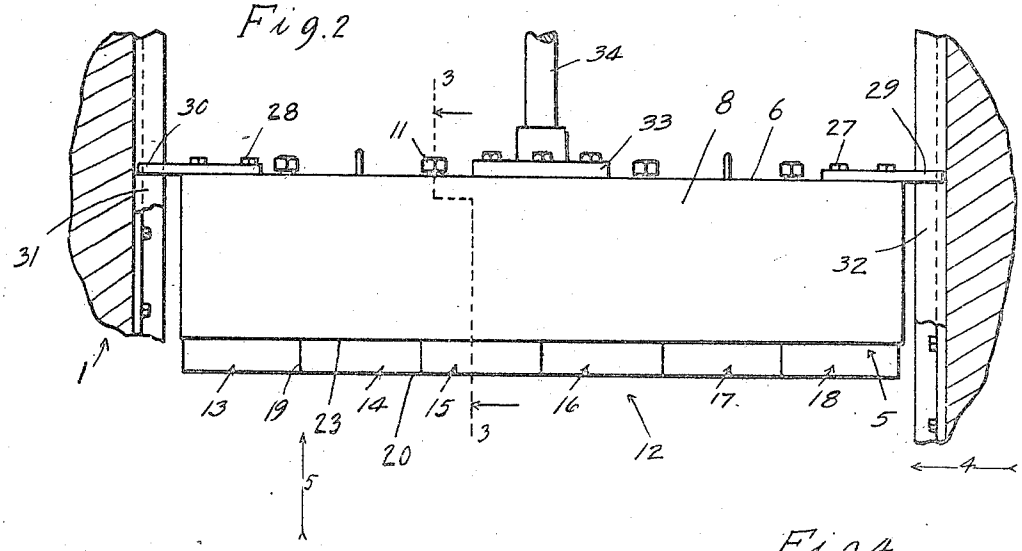


Fig. 3.

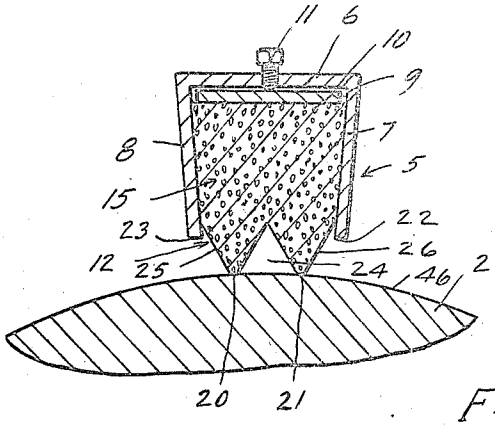


Fig. 4.

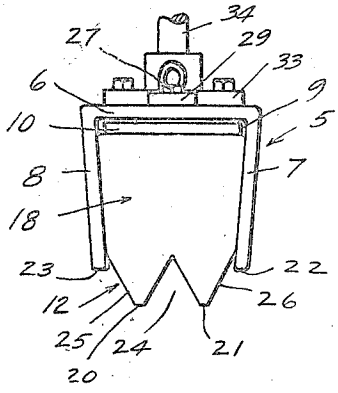
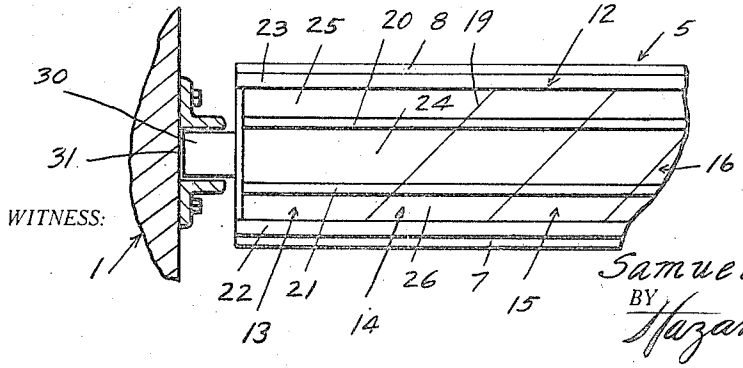


Fig. 5.



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SAMUEL HITCHINGS, OF SOUTH PASADENA, CALIFORNIA.

POLISHING APPARATUS FOR TIN OR SHEET MILLS.

1,301,440. Specification of Letters Patent. Patented Apr. 22, 1919.

Application filed September 19, 1918. Serial No. 254,354.

To all whom it may concern:

Be it known that I, SAMUEL HITCHINGS, a citizen of the United States, residing at South Pasadena, in the county of Los Angeles and State of California, have invented new and useful Improvements in Polishing Apparatus for Tin or Sheet Mills, of which the following is a specification.

My object is to make a polishing apparatus for tin or sheet mills, and my invention consists of the novel features herein shown, described, and claimed.

Figure 1 is a perspective of a tin or sheet mill provided with an upper and a lower polishing apparatus embodying the principles of my invention.

Fig. 2 is a bottom plan view of the upper polishing apparatus looking in the direction indicated by the arrow 2 in Fig. 1.

Fig. 3 is a cross sectional detail on the line 3—3 of Fig. 2.

Fig. 4 is an end elevation looking in the direction indicated by the arrow 4 in Fig. 2.

Fig. 5 is a fragmentary edge view looking in the direction indicated by the arrow 5 in Fig. 2.

The tin or sheet mill 1 may be any of the usual constructions having an upper roll 2 in opposition to a lower roll 3. My invention consists of applying the upper polishing apparatus 3 to the upper roll 2, and the lower polishing apparatus 4 to the lower roll 3.

The details of the upper polishing apparatus 3 are as follows: The polisher holder 5 is a channel shaped bar as long as the roll 2 and consists of the central portion 6 and the side portions 7 and 8, the side portions 7 and 8 being slightly inclined inwardly from the edges of the central portion 6 to produce a wedge shaped channel 9. The compression plate 10 fits loosely in the channel 9 against the inner face of the central portion 6, and adjusting screws 11 are tapped through the portion 6 against the plate 10. The polisher 12 is made up of cakes or stones of suitable material such as carborundum, emery or the like. The blocks 13, 14, 15, 16, 17, and 18 forming the polisher 12 meet on diagonal lines 19 so as to break the joints between the blocks and make practically continuous straight polishing surfaces 20 and 21. The polisher 12 thus constructed is wedge shaped in cross section or end elevation and is inserted endwise into the polisher holder 5 against the plate 10, and the adjusting screws 11 are manipulated to press the plate 10 against the polisher to tighten the polisher in the channel 9. The polisher surfaces 20 and 21 project beyond the edges 22 and 23 of the polisher holder 5, and the polishing surfaces 20 and 21 are separated by V-shaped groove 24 and have beveled outer faces 25 and 26 so that the polisher 12 looks like two saw teeth in cross section or in end elevation as in Figs. 3 and 4. Bars are secured to the upper sides of the ends of the portion 6 by cap screws 27 and 28 and the bars extend beyond the end faces of the polisher holder 12 to form the guides 29 and 30. Angle irons are secured to the inner faces of the frame of the mill 1 to form guideways 31 and 32 for the guides 29 and 30. An attaching flange 33 is secured to the portion 6 at its center, and a piston rod 34 is fixed to the flange. The guideways 31 and 32 are inclined relative to a vertical plane and the polisher holder 5 is mounted between the guideways 31 and 32 with the guides 29 and 30 extending into the guideways and with the polishing faces 20 and 21 in contact with the working face of the roll 2. A supporting bar 35 extends across the mill above the upper ends of the guideways 31 and 32, a piston cylinder 36 is mounted upon the supporting bar 35, and the piston rod 34 extends into the cylinder 36 and is attached to the piston 37. Retractile coil springs 38 and 39 connect the polisher bar 5 to the supporting bar 35, the tension of the springs being exerted to pull the polisher 12 out of contact with the roll 2. A fluid pressure pipe 40 is connected to the upper end of the cylinder 36 and leads to the supply pipe 41, and the passage through the pipe 40 to the cylinder 36 is controlled by the valve 42 so that when the supply pipe 41 is carrying steam or air under pressure and the valve 42 is open the piston 37 will be pressed to move the polisher 12 against the roll 2 and when the valve 42 is closed the tension of the springs 38 and 39 will move the polisher away from the roll. A pet cock 43 is incorporated into the pipe 40 behind the valve 42 so that when the valve 42 is closed the pet cock may be opened to release the pressure from behind the piston 37.

The cylinder 36 and the guideways 31 and 32 are long enough so that the polisher holder 5 may be withdrawn by the tension of the springs 38 and 39 to a point above the lower ends of the bearings 44 and 45

so that the polishing apparatus will be out of the way when the sheets are being passed forwardly over the roll 2. The polishing apparatus is set radially to the periphery 46 of the roll 2 so that the pressure of the polishing surfaces 20 and 21 will be at right angles to the face of the roll at the points of contact.

The details of the polishing apparatus 4 are as follows: The polisher holder 47 carries a polisher 48 held in place by adjusting screws 49, and the polisher holder 47 and polisher 48 may be identical in construction with the polisher 5 and the polisher holder 12. Supporting bars 50 and 51 are attached to the base of the mill 1 in lines parallel with the roll 3, and the guide bars 52 and 53 connect the supporting bars 50 and 51. The front supporting bar 50 is higher than the base of the frame and the rear supporting bar 51 is lower than the base of the frame so that the guide bars 52 and 53 are inclined from their forward ends backwardly and downwardly. The polisher holder 47 slides upon the guide bars 52 and 53. The piston cylinder 54 is mounted upon the supporting bar 51 and the piston in the cylinder 54 is connected to the piston rod 55, and the forward end of the piston rod 55 is connected to the polisher holder 47. The pipe 56 connects the supply pipe 41 to the cylinder 54, the passage through the pipe 56 being controlled by a valve 57, and a pet cock 58 is connected to the cylinder to relieve the pressure. Retractile coil springs 59 and 60 connect the polisher holder 47 to the cylinder 54 so that when the valve 57 is closed and the pet cock 58 open the springs 59 and 60 will withdraw the polisher 48 from contact with the roll 3.

Thus I have produced a polishing apparatus for tin or sheet mills which may be readily applied to any mill and which, when properly applied and in proper order, is ready for instant use. The lower polishing apparatus 4 may be used while the sheets are passing between the rolls 2 and 3. The upper polishing apparatus may be withdrawn to allow the sheets to be passed forwardly over the roll 2 and the polishing of the upper roll may be accomplished simply by operating the polishing apparatus during two or three revolutions of the roll 2. In this manner the rolls may be kept well polished with very little interruption of the operation of the mill.

Various changes may be made without departing from the spirit of my invention as claimed.

I claim:

The combination with a frame and a sheet mill roll, of guideways secured to the inner face of the frame, a supporting bar mounted in the frame at the opposite ends of the guideways from the roll, a polisher holder mounted with its ends in the guideways, a polisher in the polisher holder and adapted to engage the roll, a piston cylinder mounted upon the supporting bar, a piston in the piston cylinder, a piston rod connecting the piston to the polisher holder, means for supplying fluid pressure to the cylinder to advance the polisher holder, and means for withdrawing the polisher holder a sufficient distance to allow of the operation of the roll and the passage of sheets forwardly over the roll.

In testimony whereof I have signed my name to this specification.

SAMUEL HITCHINGS.