

Nov. 11, 1930.

J. P. FEENEY

1,781,378

CALENDER ROLL

Filed April 23, 1928

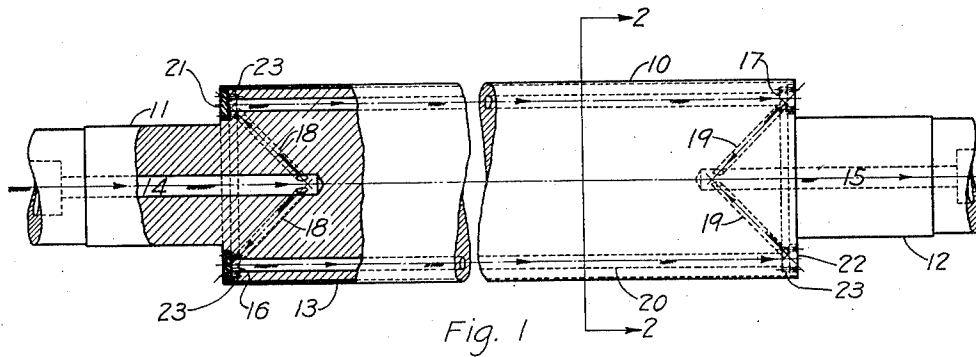
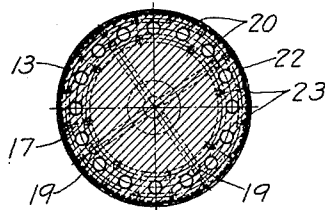


Fig. 2

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CALENDER ROLL

Application filed April 23, 1928. Serial No. 272,019.

This invention relates to improvements in calender or sheeting rolls employed in the sheeting of linoleum composition or the like. In order to produce certain types of decorative effects, and to accomplish certain economies in manufacture, it has been found most desirable that the sheeting rolls, and particularly the sheet carrying roll of the conventional linoleum calender, be of such nature that the temperature thereof may be reduced at the surface and may be positively controlled within a relatively narrow range. The object of the invention is to provide a fluid cooled calender roll having a chill hardened surface and possessing the characteristics above noted, and also of such structural rigidity as to withstand the enormous physical stresses to which rolls of this type are subjected. The invention consists in a construction as hereinafter described and particularly recited in the claim.

In the drawings:

Fig. 1 is a longitudinal sectional view of a calender roll constructed in accordance with my invention, and

Fig. 2 is a sectional view on the line 2—2 of Figure 1.

In carrying out my invention the roll 10, with the bearing portions 11 and 12, is cast as a solid unit, the surface 13, of the roll being chilled in the casting operation to provide a chill hardened surface capable of withstanding the normal wear to which rolls of this type are subjected in use.

In the casting thus formed, inlet and outlet openings 14 and 15, are bored out of the respective ends of the roll and concentric with its axis. Annular channels or grooves 16 and 17, of the general shape indicated are then formed at each end of the roll. Communicating between the inner ends of the inlet and outlet openings and each respectively adjacent annular chamber, are a plurality of passages 18 and 19. These passages are advantageously formed by drilling from

the annular grooves 16 and 17, obliquely toward the axis of the roll.

Adjacent to the surface of the roll but beneath the outer chill hardened surface 13, thereof, are a plurality of small diameter longitudinal passages 20, communicating between the annular grooves 16 and 17, and adapted for the circulation of cooling fluid in close proximity to the surface of the roll. By thus providing a relatively large number of small passages near the periphery of the roll, I am able to provide for the rapid absorption of heat from the surface without structurally weakening the roll. The open sides of the annular grooves 16 and 17, are closed by means of annular rings 21 and 22, secured to the roll by screws 23, and forming annular chambers adapted to uniformly distribute cooling fluid to the passages 20.

The operation of the roll is obvious. The cooling fluid is admitted thru the inlet opening 14, is conducted to the annular chamber 16, thru the openings 18, and thence distributed to the longitudinal passages 20. The cooling fluid having absorbed heat from the surface of the roll in flowing thru the passages 20, is collected in the annular chamber 17, conducted thru the openings 19, and thence to the outlet 15.

In following the practice of my invention I am able to construct a calender roll which has structural characteristics adapted to withstand the severe physical stresses to which it is normally subjected, which has a chill hardened surface, and which is capable of rapidly absorbing and dissipating heat thereby providing for positive control of the temperature thereof within narrow limits. To my knowledge such advantages have never been obtainable in calender rolls.

I claim:

A linoleum calender roll formed of a single solid casting having a chill hardened surface, inlet and outlet openings concentric with the axis thereof, annular grooves formed at the

respective ends of the roll, openings communicating between the inlet and outlet and each respectively adjacent annular groove, a plurality of small diameter passages communicating between the annular grooves and positioned parallel to the axis of the roll and adjacent to the periphery thereof, and means for closing the open sides of the annular grooves to form annular chambers.

10 In testimony whereof, I affix my signature.
JOSEPH P. FEENEY.

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