J. B. HUDSON.

METHOD OF RE-COVERING COTTON MILL ROLLS.

APPLICATION FILED MAR. 4, 1914.

1,103,772. Patented July 14, 1914.

Fig. 1

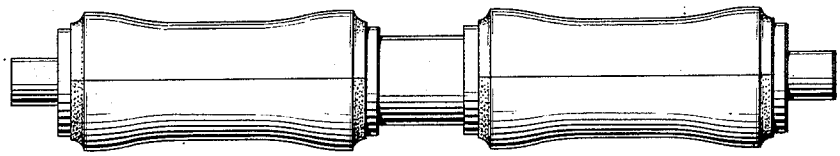


Fig. 2

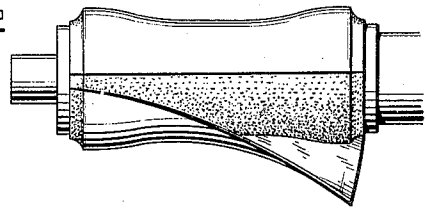


Fig. 3

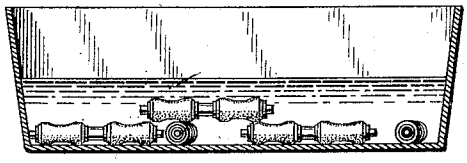


Fig. 4

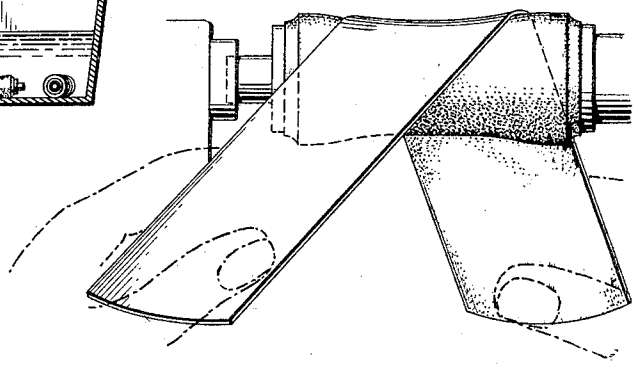
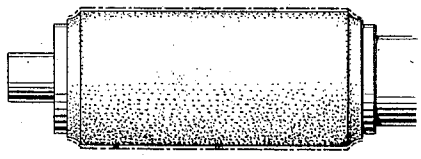


Fig. 5



Witnesses

J. L. Norris

John S. Norris

Inventor

James B. Hudson

by

James L. Norris,

Attorney.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES B. HUDSON, OF CHARLOTTE, NORTH CAROLINA.

METHOD OF RE-COVERING COTTON-MILL ROLLS.

1,103,772. Specification of Letters Patent. Patented July 14, 1914.

Application filed March 4, 1914. Serial No. 822,461.

To all whom it may concern:

Be it known that I, JAMES B. HUDSON, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented new and useful Improvements in Methods of Re-Covering Cotton-Mill Rolls, of which the following is a specification.

The leather covered rolls of cotton spinning or twisting machines, variously designated, according to their sizes and to their relation in the machine, as "slubbers", "intermediates", "speeders", and "spinning" rolls, consist of a metallic core or mandrel, a backing of felt directly superimposed on the core, and a sleeve or envelop of leather superimposed on the felt. It is frequently the case that the leather covering, (which of course takes the wear of the threads), becomes loose, and when this occurs the roll will not properly perform its function. In order to prevent the quality of the finished product from being substantially impaired, it is important that those rolls whose covers have become loose should be re-covered immediately that their defectiveness is ascertained. This is ordinarily accomplished by immersing the rolls in water, allowing them to remain a sufficient length of time for their felt and leather coverings to become thoroughly soaked, whereupon these coverings are peeled, the metal core or mandrel is dried, and the new laminated coverings, composed of felt and leather, are substituted. This operation is, however, quite expensive by reason of the time involved and by reason of the intrinsic cost of the materials and labor.

The present invention relates to an improved method of re-covering cotton mill rolls of the classes identified, and its ultimate purpose is to eliminate the expense of the ordinary method above outlined, the objects of the invention, therefore being to provide a method by which the rolls may be re-covered in a minimum period of time, with a minimum amount of labor, and at a minimum intrinsic cost.

The accompanying drawings illustrate a worn roll and certain steps in the practice of the method which forms the subject of the present invention.

In said drawings:—Figure 1 is a view illustrating a roll of any of the classes above identified, which roll may be indiscriminately a back, middle or front roll; Fig. 2 shows the initial step in the practice of the method, which consists in removing the worn and loose leather envelop or covering, leaving the worn felt upon the metal core or mandrel; Fig. 3 illustrates the second step, which consists in immersing the roll in gasolene or some other agent suitable for the purposes in view; Fig. 4 illustrates the final step, which consists in submitting the felt surface of the roll, while said surface is still wet with gasolene, to the action of an abrading or equivalent device; and Fig. 5 shows the roll with its worn felt surface restored to true cylindrical contour and in renewed condition, ready to have superimposed thereon a new envelop or covering of leather.

Similar characters of reference designate corresponding parts throughout the several views.

It will be understood that the present invention makes no distinction between the "slubbers", the "intermediates", the "speeders", or the "spinning" rolls above referred to, and that the roll illustrated in Fig. 1 may be of any of these kinds.

The first step in the practice of the method consists in removing the worn and loose leather covering in such a manner as to leave the felt backing intact. This is conveniently accomplished by cutting the cover from end to end in the longitudinal direction of the roll and then peeling the cover from the roll. A skillful operator can readily and quickly remove the leather cover from the roll in the manner stated without any injury whatever to the felt.

The second step consists in immersing the roll from which the leather cover has been removed in the manner stated in gasolene or some equivalent agent. Gasolene attacks any grease or extraneous matter that may have been taken up by the felt in the course of a relatively long period of use of the roll, completely dissolving such grease without, however, in any way attacking the glue or cement by means of which the felt is caused to adhere to the metallic core or mandrel and otherwise prepares the felt for the abrading step to follow. In performing this second step a number of rolls may be treated simultaneously, *e. g.*, twenty or twenty-five of the rolls may be simultaneously immersed in a suitable gasolene re-

ceptacle or tank. Another property of gasolene which is useful in this connection is that it is readily volatile.

The third step consists in subjecting the felt to the action of an abrading device for the purpose of restoring the felt to true cylindrical outline, of softening the felt, and of producing a uniform density thereof throughout its extent. The mechanical agency employed for effecting this step preferably and conveniently consists of a lathe by means of which the roll may be revolved with great rapidity, *e. g.*, from four to five thousand revolutions per minute, and an abrading strip, conveniently, a narrow strip of sand-paper, having a width approximately half the length of the roll, and which is held diagonally upon the surface of the felt and is manipulated with gentle pressure from one end of the roll to the other. Owing to the rapid revolution of the roll, this operation requires but a second of time, and owing to the great volatility of the gasolene, it is highly effective for the purpose of restoring the felt to true cylindrical contour, of softening the felt, and of securing a uniform density thereof throughout its extent. The best results are obtained by using sand-paper coated with the finest grade of sand and preliminarily "deadened" by being rubbed over a metal core or other device which reduces the efficiency of the abrading surface. When this operation has been completed, the roll is permitted to remain idle for a few minutes to insure of the thorough drying of the felt, and thereafter a new leather sleeve or covering, commercially known as a "cot", is superimposed upon the felt in any suitable manner.

A very small percentage of the rolls to be re-covered by the present method will have their felt backings loose. Rolls such as this should be re-covered by the old method, since if the felt backing is loose they will not render good service, notwithstanding that a new and good leather covering may be superimposed on the felt backing. The present method provides for the detection of rolls which are defective by reason of a loose felt backing and serves this purpose without the necessity of any added steps and as an incident of the step above described of buffing or abrading the felt following its immersion in the gasolene or other liquid renewing agent. That is to say, if any of the rolls have their felt backings loose, this fact will be discovered in connection with the buffing or abrading step, since the felt backing will slip upon the metal core consequent to the pressure of the sand-paper or other abrading strip. When the operator observes that the felt on a particular roll slips upon the metal core, he at once knows that the felt is loose and that the roll is defective for this reason and requires a new felt backing to put it in good condition. A further advantageous incident of the buffing or abrading step of the method is that should the felt as originally made up and superimposed on the metal core contain any uneven or hard portions, these will be worked out by the abrasive action of the sand-paper which, as above stated, restores the felt to a condition of uniform density throughout its extent.

Having fully described my invention, I claim:—

1. A method of re-covering worn rolls which comprise a metal core having a covering of felt and of leather superimposed on the felt consisting in removing the leather so as to leave the felt intact, in immersing the exposed felt in a readily volatile felt cleansing agent neutral to the glue or cement by which the felt is caused to adhere to the core, in abrading the felt immediately following the immersion of the roll, and in finally applying a new leather cover to the abraded felt.

2. A method of re-covering worn rolls which comprise a metal core having a covering of felt and of leather superimposed on the felt consisting in removing the leather so as to leave the felt intact, in immersing the exposed felt in gasolene, in abrading the felt immediately following the immersion of the roll, and in finally applying a new leather cover to the abraded felt.

3. A method of re-covering worn rolls which comprise a metal core having a covering of felt and of leather superimposed on the felt consisting in slitting the leather cover from end to end and peeling it from the roll, leaving the felt intact, in immersing the exposed felt in a readily volatile felt cleansing agent neutral to the glue or cement by which the felt is caused to adhere to the core, in abrading the felt immediately following the immersion of the roll, and in finally applying a new leather cover to the abraded felt.

4. A method of re-covering worn rolls which comprise a metal core having a covering of felt and of leather superimposed on the felt consisting in slitting the leather cover from end to end and peeling it from the roll, leaving the felt intact, in immersing the exposed felt in gasolene, in abrading the felt immediately following the immersion of the roll, and in finally applying a new leather cover to the abraded felt.

5. A method of re-covering worn rolls which comprise a covering of felt and of leather superimposed on the felt consisting in removing the leather so as to leave the felt intact, in immersing the exposed felt in a readily volatile felt cleansing agent neutral to the glue or cement by which the felt is caused to adhere to the core, in rapidly revolving the roll and simultaneously

abrading the felt immediately following the immersion of the roll, and in finally applying a new leather cover to the abraded felt.

6. A method of re-covering worn rolls which comprise a metal core having a covering of felt and of leather superimposed on the felt consisting in removing the leather so as to leave the felt intact, in immersing the exposed felt in gasolene, in rapidly revolving the roll and simultaneously abrading the felt immediately following the immersion of the roll, and in finally applying a new leather cover to the abraded felt.

7. A method of re-covering worn rolls which comprise a metal core having a covering of felt and of leather superimposed on the felt consisting in removing the leather so as to leave the felt intact, treating the felt with a liquid cleansing agent neutral to the cement by which the felt is secured, in restoring the felt to cylindrical contour, and in finally applying a new leather cover to the restored felt.

8. A method of re-covering worn rolls which comprise a metal core having a covering of felt and of leather superimposed on the felt consisting in removing the leather so as to leave the felt intact, in first cleansing and thereafter softening and truing the worn felt, and in finally applying a new leather cover to the renewed felt.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES B. HUDSON.

Witnesses:
JOHN S. POWERS,
CHAS. S. HYER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."