Patented Apr. 16, 1935

1,998,230

UNITED STATES PATENT OFFICE

1,998,230

ATTACHMENT FOR CORRUGATING MACHINES

Walter C. George, St. Louis, Mo., assignor to Robert Gaylord, Incorporated, St. Louis, Mo., a corporation of Missouri

Application April 12, 1934, Serial No. 729,186

15 Claims. (Cl. 154—30)

My invention relates to an attachment for corrugating machines, such as are used in the manufacture of corrugated fiberboard. It has for one of its objects the application of oil to the periphery of one or more of the fluted rolls employed in forming the corrugated component of the sheet.

Another object of my invention is to polish the surface of the roll or rolls and to remove therefrom adhering foreign particles, such as fiber detached from the sheet of material operated upon.

In carrying out my invention, in its preferred form, I employ a rotary member meshing with the fluted roll to be oiled and cleaned, a portion of the periphery of said rotary member being formed of porous material to which oil is supplied. Further, I impart to said rotary member a reciprocating movement in the direction of the length of the fluted roll to polish its surface. I still further provide the rotary member with peripheral grooves in which fiber or other foreign matter on the surfaces of the rolls is collected due to the combined rotary and longitudinal movements of the device.

In the accompanying drawings, which illustrate an oiling and cleaning attachment made in accordance with my invention, Figure 1 is a cross section of a portion of a corrugating machine to which my attachment is applied; Figure 2 is a plan view of the attachment; Figure 3 is a longitudinal section through the oiling roll and adjacent parts; Figure 4 is a cross section of the oiling roll, showing a modification; Figure 5 is an edge view of one of the oil conducting discs used in the modified form; and Figure 6 is an enlarged longitudinal section through a portion of the oiling roll, showing the application of one of the oil conducting discs.

In Figure 1, I have shown a portion of one type of corrugating machine to which my attachment is applicable. In this machine, which is designed to produce single faced corrugated board, the numeral 1 represents the main fluted roll, 2 is a spring-pressed fluted roll cooperating with the roll 1 to corrugate one of the sheets from which the finished product is produced. This sheet, indicated by the broken line A, is led over the moistening roll 3 and thence over the top of roll 2 down between rolls 1 and 2 where the corrugations are formed. After passing around the lower part of roll 1, where silicate is applied to the tips of the corrugations by a transfer roll 4, it is united to the lining sheet, indicated by the broken line B, by the action of the pressure roll 5. The lining sheet is led to the roll 5 over a guide roll 6, and the finished product is led from between rolls 1 and 5 to discharge guide roll 7 carried in brackets 8 on the frame of the machine.

In the form of corrugating machine shown, my attachment is most conveniently mounted on a rock shaft 9 journaled in the brackets 8 carrying a discharge guide roll. Keyed to the shaft 9 are arms 10 and 11 forming the end members of the frame of my attachment. Arms 10 and 11 are connected by bars 12 and 13 to form a frame which extends substantially throughout the length of the fluted roll 1.

Mounted in the frame is the oiling roll, the center of which is formed of a tubular member 14, closed at one end by plug 15 having an extension journaled in the arm 10 and at the other by a plug 16 having an extension journaled in the arm 11. The tubular member forms the oil reservoir of the device. Oil may be supplied to the reservoir through a central passage 17 in the plug 16, the outer end of the plug being provided with a threaded nipple 18 for connection with an oil applicator of the grease gun type. The plug 16 is preferably provided with a central passage 19 to permit the escape of air when the reservoir is filled. It will be understood that the reservoir must not be filled to a point above the openings 17 and 18 or the oil will escape through these openings.

Mounted on the tubular member 14 are the oiling elements each comprising a central part 20 of felt or similar porous material and a pair of end plates 21 of more rigid material, such as fiber. The object of the end discs is to prevent spreading of the felt and to provide sufficient rigidity to the oiling elements to permit the transmission of motion from them to the reciprocating mechanism hereinafter described. The peripheries of the oiling elements are fluted to correspond with the fluting of the roll to which the device is applied so as to make intimate contact therewith when rotating in mesh therewith. The several oiling elements are held in alignment by being splined to the tubular member 14 by means of a key 22 entering corresponding key-ways in the elements. Each of the felt parts 20 may be formed of a single block of material, as shown in Figure 2, but for convenience in manufacture each part is preferably formed of a number of felt discs which may be conveniently stamped from sheet material. In Figure 3 I have shown each part 20 as formed of six such discs. The individual oiling elements are separated to form peripheral grooves between them by spacing discs 23. These spacers may be made of felt to convey oil along the outer faces of the fiber discs 21 but this is not essential. The spacers may be of non-porous material if desired. Oil is admitted to the porous portion of the oiling roll through openings 24 in the tubular member 14 and thence passes to the periphery of the roll where it is applied to the surface of the corrugating roll 1. The plugs may be provided with
grooves 25 aligning with the openings 24 to permit oil to be supplied nearer the ends of the roll than would otherwise be possible to the surface of said oiling roll, and means for reciprocating said oiling roll in the direction of its length.

5. The combination with a fluted roll of a corrugating machine, of oiling means including a fluted oiling roll meshing with said first named roll.

6. The combination with a fluted roll of a corrugating machine, of oiling means including a fluted oiling roll meshing with said first named roll, said oiling roll being provided with peripheral grooves.

7. The combination with a fluted roll of a corrugating machine, of oiling means including a fluted oiling roll meshing with said first named roll, said oiling roll being provided with peripheral grooves and means for reciprocating said oiling roll in the direction of its length.

8. The combination with a fluted roll of a corrugating machine, of an oiling roll therefor comprising a plurality of oiling elements spaced apart to provide peripheral grooves.

9. The combination with a fluted roll of a corrugating machine, of an oiling roll therefor comprising a plurality of oiling elements spaced apart to provide peripheral grooves, each of said oiling elements being formed of a porous center and a pair of supporting end plates.

10. The combination with a fluted roll of a corrugating machine, of an oiling roll therefor comprising a plurality of oiling elements spaced apart to provide peripheral grooves, each of said oiling elements being formed of a porous center and a pair of supporting end plates.

11. The combination with a fluted roll of a corrugating machine, of a fluted oiling roll meshing with said first named roll, said oiling roll comprising a plurality of oiling elements spaced apart to provide peripheral grooves.

12. The combination with a fluted roll of a corrugating machine, of a fluted oiling roll meshing with said first named roll, said oiling roll comprising a plurality of oiling elements spaced apart to provide peripheral grooves, and means for reciprocating said oiling roll in the direction of its length.

13. The combination with a fluted roll of a corrugating machine, of a frame pivotally mounted adjacent thereto, a corrugated oiling roll rotatably mounted in said frame and meshing with said first named roll, and means for reciprocating said frame to move the oiling roll in the direction of its length.

14. The combination with a fluted roll of a corrugating machine, of a frame pivotally mounted adjacent thereto, a corrugated oiling roll rotatably mounted in said frame and meshing with said first named roll, a cam for reciprocating said frame, and gearing for driving said cam from said oiling roll.

15. The combination with a fluted roll of a corrugating machine, of a frame pivotally mounted adjacent thereto, a corrugated oiling roll rotatably mounted in said frame and meshing with said first named roll, said oiling roll comprising a plurality of oiling elements spaced apart to provide peripheral grooves, a cam for reciprocating said frame, and gearing for driving said cam from said oiling roll.

WALTER C. GEORGE.