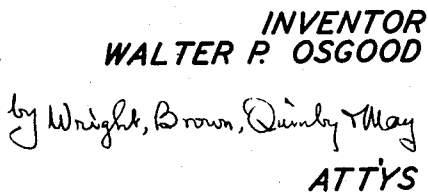


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ROLL-STRIPPING MEANS FOR CEMENTING MACHINES

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ber 16, 1950, Serial No. 201,182

4 Claims. (Cl. 118-245)

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This application is divided from application, Serial No. 155,543, filed April 12, 1950, for Cementing Machine. The invention relates to improvements in mechanisms for applying a film of liquid adhesive to pieces of sheet material such as thin leather which has been cut to form various shapes for use in shoe uppers, the film being applied by means of a rotating roll which dips into a pool of the adhesive. More particularly, the invention relates to improved means for stripping from the roll work pieces which have been applied thereto to receive a coating of adhesive.

According to the invention, stripper fingers are provided, together with convenient and effective support means therefor, which can quickly and easily be mounted in place for use or removed from the machine for cleaning or replacement.

For a more complete understanding of the invention, reference may be had to the following description thereof and to the drawing, of which—

Figure 1 is a plan view of a cementing machine which includes an embodiment of the invention;

Figure 2 is a section on the line 2—2 of Figure 1; and

Figure 3 is a fragmentary elevation of one of the stripper fingers, on a larger scale, showing its relation to the supporting bar.

The machine illustrated on the drawing is a portable "bench" type of machine consisting of three major parts which can be easily disassembled. The part designated A includes a base 20 which carries a suitable electric motor, the position of the motor being indicated in broken lines at 22. The part A also carries a work table, pulleys, belts, and shafts. The part B is detachably secured to the part A and includes a trough for holding a pool of liquid cement, means for maintaining the pool at a constant level, a coating roll dipping into the pool, a doctor to regulate the thickness of the film carried by the coating roll and stripping means. The part C is hinged to the part A and consists of a frame which supports two feeding and guiding rolls and a guide plate above the coating roll.

Rising from the base 20 is a wall 24 which extends from front to rear. Parallel to the wall 24 is a second wall 26 which extends between a forward post 28 and a rear post, not shown. A shaft 34 extends through the upper portion of the post 28 and through the opposite portion of the wall 24, this shaft having a portion which projects out beyond the base 20 to support some

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of the pulleys which are employed in the driving mechanism. The part B comprises a trough 52 in which is rotatably mounted a coating roll 54 and a receptacle 72 which is adapted to receive an inverted bottle or jar 74 containing a supply of liquid cement. When a jar of cement is inverted and placed in the receptacle, the cement escapes from the jar until the mouth of the jar is sealed by the pool of cement in the receptacle 72. This receptacle is connected with the trough 52 so that the pool of cement in the trough is maintained at a predetermined level as long as there is a reserve supply in the jar 74.

The forward edge of the trough 52 has a lip 86 to which is detachably secured a suitable doctor blade 88. A pair of set screws 90 bear against the edge of the lip 86 and are adjustable to regulate the clearance between the edge of the doctor 88 and the surface of the coating roll 54. In order to secure the doctor to the lip 86, a pair of bolts or screws 92 having wing heads 94 at one end and plain heads 96 at the other end are screw threaded through the doctor blade 88.

On the opposite side of the roll are mounted stripping fingers 100. These are supported by a bar 102 which is rockably mounted so as to extend parallel to the trough and coating roll. A center 104 which is fixed in an ear 106 at the end of the trough 52 enters one end of the bar 102; a center 108 carried by a spring 110 which is mounted on a side wall of the receptacle 72 enters the other end of the bar 102 so that the bar can readily rock about these centers. The upper face of the bar is transversely slotted in several places as at 112, these slots being slightly wider than the thickness of the stripper fingers 100. As indicated in Figures 2 and 3, the bar 102 is transversely inclined so that it slopes downward toward the trough 52 at an angle of approximately 30° although it is horizontal longitudinally. Each stripping finger 100 is preferably made from sheet material $\frac{1}{8}$ of an inch thick so that it has parallel side faces. Each finger has a base portion 114 which is slotted as at 116 so that the base of the finger can be slid on to the bar 102 at one of the slots 112, the thickness of the bar where it is slotted being slightly less than the width of the slot 116. The upper portion of each finger 100 is a head 118 tapering to a point 120 which is adapted to rest against the surface of the roll 54. The under edge 122 of the head is arcuate, its curve being substantially tangent to the curvature of the roll surface as it curves gradually away from the surface of the roll downward from the point 120.

The upper edge of the head 118 is bevelled on both sides as at 124 to an edge so that the point 120 is the intersection of three planes. As indicated in Figure 3, the slot 116 is slightly wider than the slotted thickness of the bar 102, this difference being exaggerated in Figure 3. A finger can quickly be mounted on the bar 102 by aligning its slot 116 with a slot 112 and moving it forward across the bar until the tip 120 touches the roll. The downward pull of gravity on the finger and the reactive upward pressure of the roll against the tip 120 of the finger tend to cause the finger to rock in a clockwise direction as shown in Figures 2 and 3 so that it presses against the upper face of the bar 102 at the point 126 and against the lower face of the bar at the point 128. Thus the fingers 100 on the bar normally impress a torque of small magnitude tending to rock the bar in a clockwise direction. A bracket 130 is secured to the bar and extends downward. This bracket is supplied with a set screw 132 which bears against the rear face of the part B to act as an adjustable stop for the clockwise rocking movement of the bar 102 whereby the angle of transverse inclination of the bar can be regulated. The bar, as seen in Figure 2, is free to rotate in a counterclockwise direction, such rotation being opposed by the engagement of the fingers 100 against the roll 54. This method of mounting the stripper fingers is particularly advantageous since the nose of each finger bears lightly but constantly against the surface of the roll. The two methods of mounting stripper fingers heretofore in use are the rigid gang-mounting of a number of fingers on a bar adjacent to the roll, and the individual mounting of fingers rockably on a cylindrical bar in such a manner as to let them bear against the roll by their own weight and be free to rock away from the roll. The first method is troublesome because of the difficulty of adjusting the fingers for uniform bearing of all the fingers against the roll. The second method is troublesome because of the frequency with which the work pieces drag on some of the fingers and cause them to flop over away from the roll. According to the present mounting of the fingers, the fingers are individually held lightly against the roll by gravity but cannot rock away from the roll. Each finger can be instantly mounted on or removed from the bar and is automatically self-adjusting.

The part C consists primarily of a transverse frame member 140 extending substantially the full width of the machine and supporting two rotatable rolls 142 and 144. The frame 140 has a pair of integral arms 147 and 148 through which extends the fixed shaft 34, this shaft acting as a hinge pin about which the part C can be rocked forward. The rolls 142 and 144 which are carried by the frame 140 are parallel to each other and to the coating roll 54. They are preferably of smaller diameter than the roll 54 and are supported above it. The guide rolls 142 and 144 are spaced apart to provide a clearance between them which is greater than the thickness of any material which is to be fed to the machine for coating. The clearance between the rolls 142 and 144 and the coating roll 54 is likewise greater than the thickness of the material fed thereto. In order to prevent any sagging of the rolls 142 and 144, the frame 140 may be stiffened by a truss rod 150 which is secured to ears 152 and 154 projecting up from the top of the frame 140. The frame 140 also carries a guide blade 160 which slopes from the forward edge of the frame rear-

wardly toward the clearance between the rolls 142 and 144, as indicated in Figure 2, so that a piece of flexible sheet material such as split leather which is fed toward the guide rolls is guided by the blade 160 down between the two rolls and against the top of the coating roll 54. The guide rolls 142 and 144 are driven so as to rotate toward each other with peripheral speeds greater than the peripheral speed of the coating roll 54.

The coating roll 54 and the guide rolls 142 and 144 are driven by any suitable means such as the belt and pulley connections shown in Figure 1. A motor shaft is indicated at 170, a pulley wheel 172 being mounted on this shaft. A belt 174 connects the pulley wheel 172 to the middle sheave 176 of a triple pulley, the other two sheaves 178 and 180 being on a common hub with the sheave 176, this hub being rotatably mounted on the shaft 34. A belt 182 extends from the sheave 178 to an idle pulley 184, the upper stretch of this belt passing between the rolls 142 and 144 which are grooved to receive the belt. A third belt 190 extends from the sheave 180 to the pulley wheel 46 to drive the coating roll. Since the part C swings about the shaft 34 as an axis, and since the sheave 178 revolves about the same axis, the part C can be swung back without disturbing the drive connections by which the rolls 142 and 144 are rotated when the machine is in operation. To limit the swing of the part C, the adjusting screw 146 is so located that its head engages a horizontal rod 200 as a stop member, this horizontal rod being mounted at one end on an upright post 202 which is secured to the base 20. The horizontal rod 200 also supports a work table 204 which extends from the rod toward the guide rolls 142 and 144. A pin 208 extends horizontally from the lug 147 to support the rear portion of the table 204. Hence the table must be swung out of the way before the part C can be swung to its inoperative position.

When it is desired to use the machine, a jar or flask 74 of suitable cement is inverted and placed in the receptacle 72. The motor is started and pieces of work are slid manually on the table top 204 until the leading edge of each work piece engages the guide roll 142. The roll then acts to feed the work piece along, the leading edge being deflected downward by the guide blade 160 until it is further deflected by engagement with the guide roll 144. Since the latter is also driven, it helps to feed the work piece along. The leading edge meets the surface of the coating roll 54 which has picked up a film of cement from the pool in the trough. This roll carries the work along until it is stripped from the roll by the fingers 100 which it encounters. This arrangement of parts is effective to properly feeding and guiding work pieces of such material as split leather having irregular contours, without causing the work pieces to buckle or jam in the apparatus. Before sending any work pieces through the machine, stripper fingers 100 may be arranged on the bar 102 according to the size and shape of the work pieces to be coated. Since cement which contains rubber latex coagulates upon drying and is then difficult to remove, it is desirable to wash promptly all parts touched by cement whenever the apparatus is to be left idle even for a brief period such as a lunch hour. When a substantial pause in operation is expected, the jar 74 is removed from the receptacle and the table 204 is swung up to get it out of the way of the part C. The latter is then swung up to re-

move the guide rolls 142 and 144 from their normal position directly over the coating roll 54. The remaining cement in the trough 52 and receptacle 72 can be dumped into a suitable container and these parts promptly washed with water to remove residual cement therefrom. The bar 102 with the fingers 100 thereon can be quickly removed from the centers 104 and 108 by pressing on the spring 110, and the coating roll 54 can be lifted from the trough to facilitate the washing. These operations can be very quickly and easily performed so that the machine is soon clean and can be at once reassembled to be ready for further operation.

I claim:

1. In a coating machine which includes a trough for liquid cement and a driven roll mounted in said trough, means for stripping from said roll work pieces which have been applied thereto to be coated, said stripping means comprising a support member rockable about an axis parallel to the axis of said roll, and a plurality of stripper fingers on said support member each slidable independently thereon toward said trough, said support member and fingers having mutually engaging surfaces locking said fingers against appreciable rocking movement relative to the support member about the axis of the latter.
2. In a coating machine which includes a trough for liquid cement and a driven coating roll mounted in said trough, means for stripping from said roll work pieces which have been applied thereto to be coated, said stripping means comprising a flat bar extending parallel to said roll and transversely sloping downward toward the trough, and a plurality of stripper fingers independently slidable on said bar toward or from said roll, each said finger having a base portion with a slot receiving said bar with a sliding fit to support the finger and an upper portion terminating in a point resting against the periphery of said roll.
3. In a coating machine which includes a trough for liquid cement and a driven coating roll mounted in said trough, means for stripping

from said roll work pieces which have been applied thereto to be coated, said stripping means comprising a flat bar extending parallel to said roll and transversely sloping toward the trough, said bar having transverse grooves in a face thereof, and stripper fingers independently slidable on said bar toward and from said roll, each said finger being of sheet material of a thickness slightly less than the width of said grooves and comprising a base portion with a slot adapted to fit slidably on said bar at one of said grooves and a head portion terminating in a point resting against said roll.

4. In a coating machine which includes a trough and a horizontal coating roll rotatably mounted therein, means for stripping from said roll work pieces which have been applied thereto, said stripping means comprising a flat bar parallel to said roll, means rockably supporting said bar outside of and adjacent to said trough, said means including a fixed center extending into one end of said bar, a second center extending into the other end of said bar, and a spring element attached to said trough and second center and arranged to press said second center yieldingly into said other end of the bar, stop means for limiting rocking movement of said bar in a direction away from said roll, and a plurality of stripper fingers slidable on said bar, toward or from said roll, each said finger having a base portion with a slot adapted to receive a portion of the bar and a head portion with a pointed extremity adapted to bear against the surface of the roll, said bar normally sloping transversely downward toward said trough.

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