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L. N. BISHOP
CEMENTING APPARATUS
Filed Feb. 6, 1933

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2 Sheets-Sheet 1

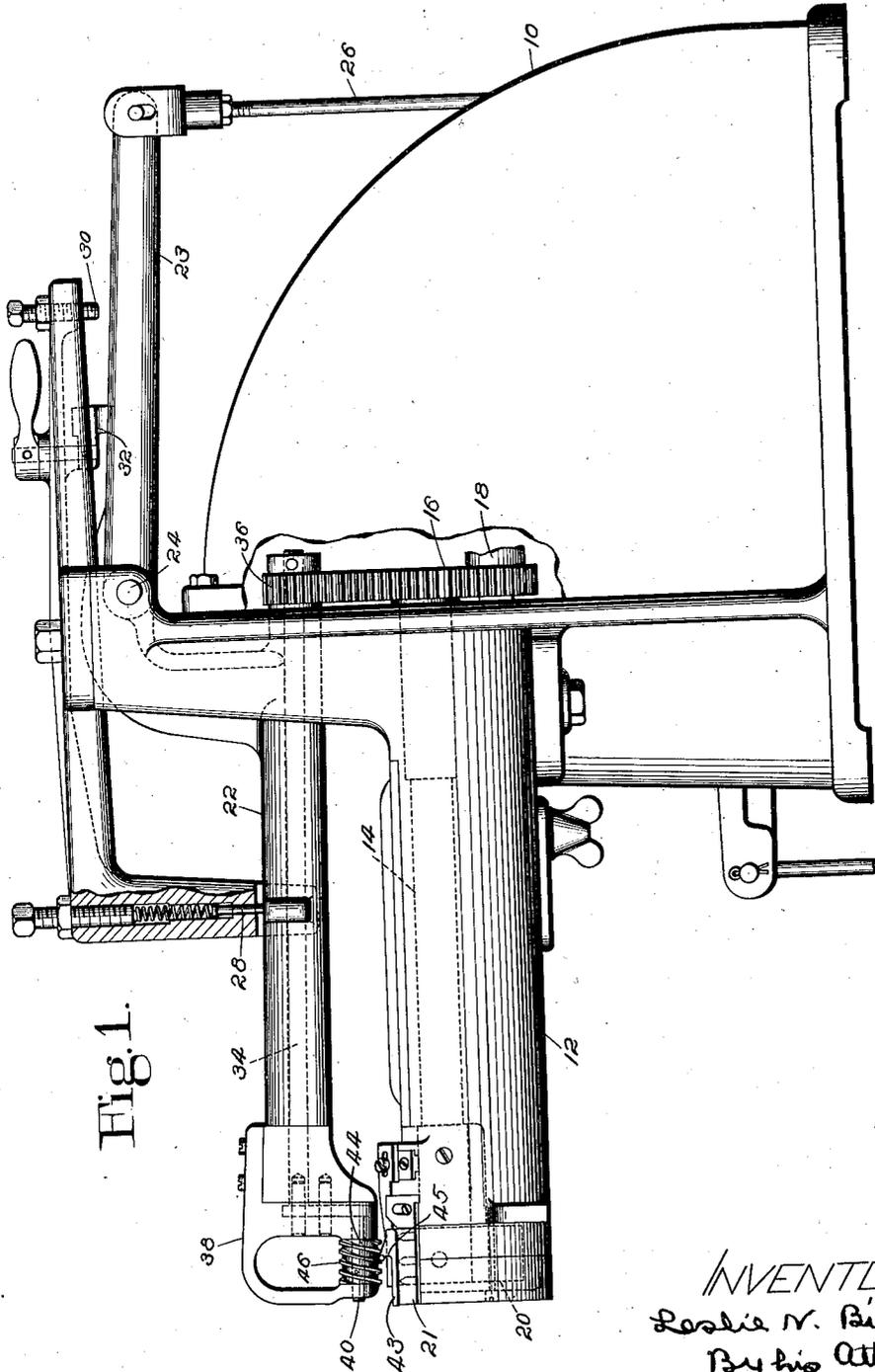


Fig. 1.

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Fig. 2.

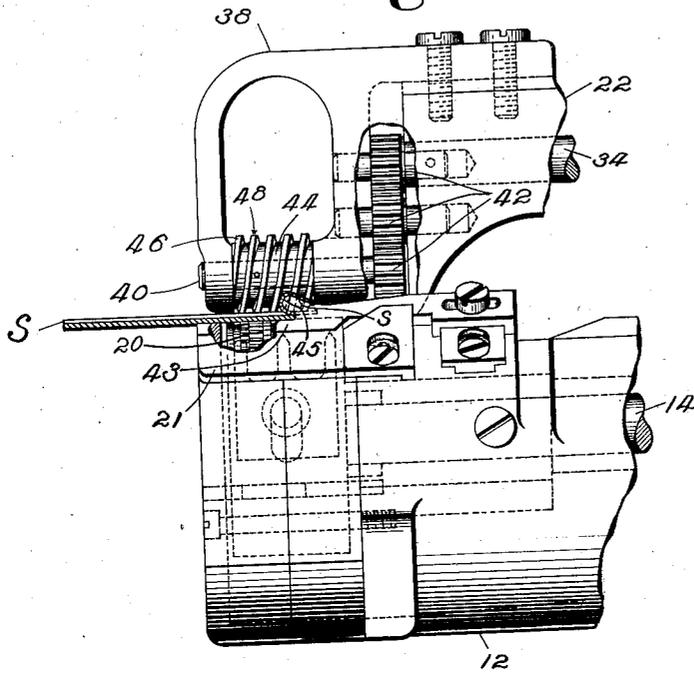
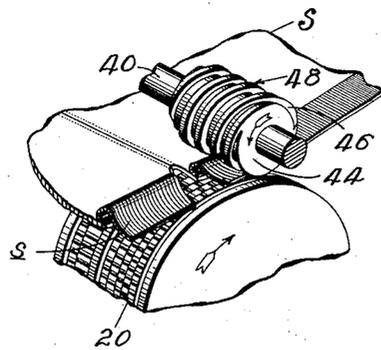


Fig. 3.



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CEMENTING APPARATUS

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5 Claims. (Cl. 12-80)

This invention relates to apparatus for applying a coating of cement to work-pieces, and more particularly to such pieces as those to which are attached strips of binding-material. An example of work of this character is furnished by shoe-uppers which are to be finished with the well-known French edge. A machine for performing such an operation is the subject of Letters Patent of the United States, No. 1,790,901, Cosgrove, February 3, 1931. This machine, in preparation for the application of the cement to a margin of the upper and to the face of the binding which is to be attached to said margin, straightens the binding from a position overlying the portion to which it has been stitched into a position where it extends in the opposite direction outside the upper, ready for folding over and final attachment.

The present invention has as an object the provision of a simplified organization by which may be accomplished the simultaneous positioning and coating of work-pieces, and, for such work as French binding, the straightening of the attached binding-strip. For the attainment of this object, I associate with a rotatable cement-applying member, arranged for contact with both the work piece and the strip, an opposed abutment or pressure member co-operating with the applying member to advance the work, and provided with a helical projection for engagement with said work, both members preferably being in the form of rolls. The inclination of the convolutions of the revolving helix is such that the work is not only fed forward by the engagement, but also has applied to it a component of the force exerted by the helix which will be toward the edge of the margin acted upon. This may be in the direction of a gage by which the work is located. To obtain this feeding and positioning result, the members are shown as rotating oppositely and in a direction which causes successive points upon the helix to travel toward the gage. When work with an attached strip is operated upon, the opposite rolls or members may each contact with both the upper or work-piece and said strip to simultaneously effect their feeding and the straightening of the strip; and, in this connection, it is to be understood that the means for producing this compound action is not necessarily limited to a helix. In the embodiment of the invention which I have chosen to disclose herein, there is a cement-receptacle in which is rotatable an applying roll, an arm pivoted above the receptacle and extending longitudinally of the axis of the applying roll, in which

arm a longitudinal shaft is journaled, and a helix revoluble by the shaft and arranged to contact with the work at the side opposite the applying roll. The helix appears as carried by a roll, and serves as pressure means to hold the work in cement-receiving contact with the applying roll, as well as feeding and positioning means for said work.

The accompanying drawings illustrate one of the forms which this invention may assume,

Fig. 1 being a broken side elevation of my improved cementing apparatus;

Fig. 2, an enlarged side elevation of the work-engaging and more closely associated elements; and

Fig. 3, a detail in perspective of such work-engaging elements.

Generally the apparatus may resemble that of the previously mentioned patent. A frame 10 has projecting from one side a horizontal arm 12, which is hollow to furnish a receptacle supplied at a constant level with the cement or other adhesive to be applied. Journaled longitudinally of the arm is a shaft 14, geared at 16 to a driving shaft 18 rotatable upon the frame under the control of the operator. Within the receptacle, fixed upon the outer extremity of the shaft 14, is an applying member, preferably furnished by a roll 20, with the upper portion of its periphery lying outside the receptacle above the top of the arm 12. The surface of the roll is so formed as to bring up from the receptacle the proper quantity of cement for application to the work. In Fig. 3 of the drawings, the roll-surface is shown as knurled for that purpose. The delivery from the roll to the work may be controlled by a scraper 21 adjustable upon the frame-arm. Near the top of the frame 10, an arm 22 is pivoted at 24 and extends in a direction generally parallel to the frame-arm 12. A force is normally exerted upon a rod 26 connected to a treadle and to an extension 23 of the arm 22 to hold said arm normally raised, so its outer end is separated from the applying roll 20, as appears in Fig. 1. When this force is overcome by the depression of the treadle, a spring-actuated plunger 28, movable vertically in the frame, urges the arm 22 about its pivot toward the arm 12 to an extent adjustably determined by a stop-screw 30. A cam-lever 32 acting upon the extension 23 allows the operator to lock the arm 22 in an elevated, ineffective position.

Journaled in the arm 22 is a shaft 34 rotatable through a pinion 36 meshing with the gearing 16. Attached to the outer extremity of the arm 55

22 is a bracket 38, having mounted to turn in its lower portion a short shaft 40 parallel to the shaft 34, from which it may be rotated through a chain of gearing 42 (Fig. 2) in a direction opposite to the shaft 14. Fast upon the shaft 40 is an abutment-roll 44, which performs the plural function of pressing the work against the applying roll and, in co-operation with said roll, of both feeding the work forward to cause a band of cement to be laid along the margin and positioning said work transversely of its direction of advance. In cementing work for French binding, as illustrated in Figs. 2 and 3 of the drawings, where a binding-strip *s* is shown as stitched to the edge of an upper *S*, this positioning effect may be exerted both to maintain the work in the correct relation to an adjacent edge-gage 43 and to straighten out the binding so the applying roll may more completely coat its under face. The gage is situated at the rear of the bite of the rolls 20 and 44 and has a contact-shoulder 45 raised above and overhanging the body of the gage. To give the multiple effect just referred to, the work-contact surface of the roll 44 is furnished by a helix 46, preferably in the form of a square thread, providing at 48 a work-engaging surface of considerable width. The length of this helix is such that it contacts over both the pieces *S* and *s* opposite the roll 20. Considering its direction of movement, which is opposite to that of the roll 20, as indicated by the arrows in Fig. 3, the inclination of the helix is such that, in its revolution, successive points of contact of its periphery with the work move toward the gage-shoulder 45. Consequently, the pressure-surface 48 exerts upon the work a force having two components, one of which acts to produce the desired forward feed, while the other, at right angles thereto, is effective to urge the work inwardly, with the edge of the upper *S* and the connected binding-strip *s* in contact with the gage-shoulder 45. With the strip turned outwardly over said shoulder, the helical surface 48, as it revolves, will accomplish the following results: It will force the upper *S* down upon the applying roll 20 to receive its coating of cement therefrom, will feed it, with its attached strip *s*, forward to extend said coating along the margin, will maintain the edges of the combined work-faces against the gage-shoulder 45 in the proper transverse relation to the applying roll, and will straighten out and hold smoothly down for coating the free portion of the strip upon the applying roll.

To outline the operating procedure followed in using the apparatus, with power applied to the shaft 18, the operator presents the work-pieces, consisting of the upper *S* and its binding-strip *s*, to the applying roll 20 beneath the raised pressure-roll 44, with the strip upmost and turned

by hand away from the piece *S*, locating the work by the contact of the forward portion of the edges of the two pieces with the shoulder 45 of the gage 43, which shoulder the strip *s* overlies. The rod 26 is thereupon raised to allow the plunger 28 to press the helix-surface 48 of the roll 44 upon the work. Its simultaneous advance, transverse positioning and smoothing follows, causing what is now the under side of both the upper and the strip to be coated as already described. The operation having been completed by thus applying the cement to the desired extent of the margin, the rod 26 is released to permit the roll 44 to be elevated, ready for the succeeding operation.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In an apparatus for cementing a work-piece with an attached strip, opposite rolls upon substantially parallel axes and each arranged for contact with both the work-piece and the strip, one of said rolls being provided with means for feeding such pieces and the strip and for straightening said strip, and means for supplying cement to one of said rolls.

2. In an apparatus for cementing a work-piece with an attached strip, opposite rolls each arranged for contact with both the work-piece and the strip, the contact-surface of one of said rolls consisting of a continuous helix constructed and arranged to straighten the strip, and means for supplying cement to one of said rolls.

3. In an apparatus for cementing a work-piece with an attached strip, opposite rolls each arranged for contact with both the work-piece and the strip to feed them forward, the contact-surface of one of said rolls consisting of a helix the axis of which lies transverse to the direction of feed, and means for supplying cement to the roll opposed to the helix.

4. In an apparatus for cementing a work-piece with an attached binding-strip, a cement-receptacle, a cement-applying roll rotatable therein and arranged to contact with both the work-piece and the binding-strip, and a pressure-roll rotatable above and upon an axis substantially parallel to that of the applying roll and provided with a helix arranged for contact with both the work-piece and the binding-strip.

5. In an apparatus for cementing a work-piece with an attached binding-strip, a cement-receptacle, a cement-applying roll rotatable therein and arranged to contact with both the work-piece and the binding-strip, an arm pivoted above the receptacle, a shaft journaled longitudinally of the arm, a pressure-roll carried by the shaft and having a surrounding helical projection arranged for contact with a work-piece, and means for rotating the rolls in opposite directions.

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