June 9, 1959 S. O. SIDORE 2,889,789

LOOPING MACHINE ATTACHMENT

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Fig. 1

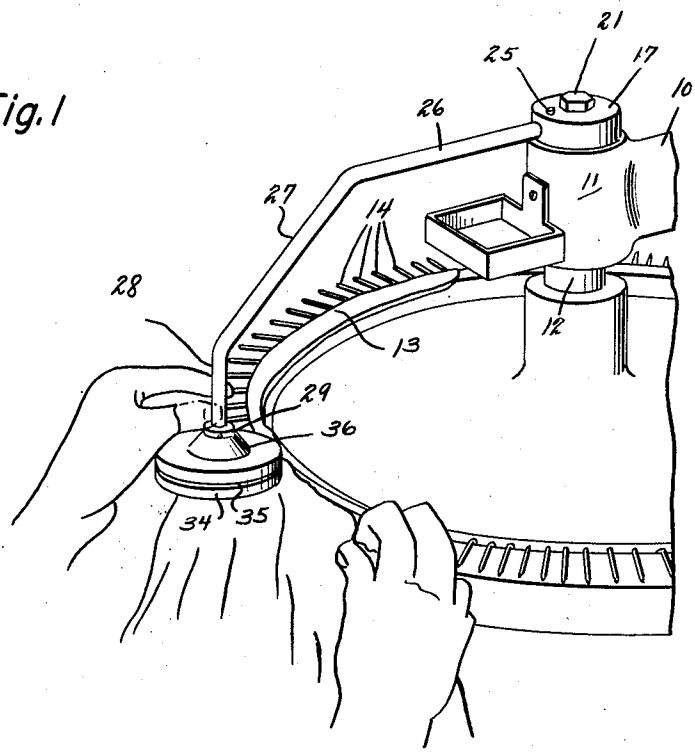
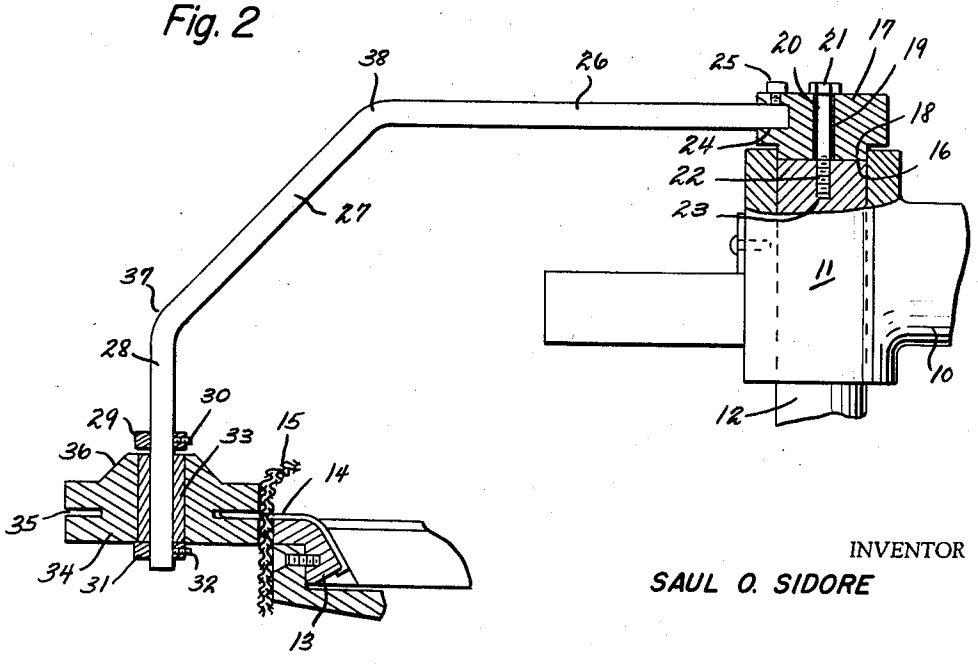


Fig. 2



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LOOPING MACHINE ATTACHMENT

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2 Claims. (Cl. 112—26)

The present invention relates to looping machine attachment, and more particularly refers to a device applicable to existing types of looping machines which will travel freely and manually about the dial for the purpose of pushing the material or fabric on the dial points or needles.

The primary object of the invention is to speed up operator's process of pushing material all the way on the points and at the same time saving the operator's fingers from punctures from the points.

Another object of the invention is to prevent drop stitches.

A further object of the invention is to provide an attachment for the purpose described which lends itself to separate manufacture from the machine so that the same may be sold separately at relatively small cost and easily applied to the conventional looping machine.

The invention has for its further object to provide a novel form of pusher member or wheel having an annular slit therein to accommodate in the slit the circle of the dial points as the wheel is rotated back and forth about the dial in the act of pushing the fabric or material home upon the points.

A still further object of the invention is to provide an attachment for looping machines in which provision is made for mounting a radial arm or orienting member for the pusher about the center post of the looping machine by a novel form of bearing restrictive of substantial radial movement of the arm, accordingly holding the pushing member over the points with substantially no casual or accidental radial movement to thereby effectively force the material over these points substantially up against the dial ring, all this to the end that the material, or the loops thereof, will not escape from any of the points incident to subsequent machine operation.

The invention has for a further object to provide a detachable pusher member for a looping machine in which the parts are so constructed and arranged as to be required to be assembled in a certain specified order which after assembly will prevent the casual or accidental radial movement referred to.

The invention has for its further purpose to provide a freely rotatable device about the center post or other part of the conventional looping machine to admit of easy manual actuation independently of any movable or driven parts of the machine.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views:

Figure 1 is a fragmentary perspective view of a conventional looping machine illustrating one embodiment of the invention as being applied thereto in a position of use.

Figure 2 is a vertical sectional view, with parts shown in elevation, of the same.

The form of the invention illustrated in the drawing is shown in connection with Model "P" Sotco Looper manufactured by Southern Textile Machine Company, in which 10 designates the supporting arm and 11 the bearing head of such machine. The conventional machine also embodies a center post or vertical shaft 12 and a rotary needle ring 13 having points, pins or needles 14.

Material or fabric 15 is shown as being applied over the points 14.

The head 11 of the machine, which is a casting, is bored for the shaft 12. Such shaft 12 extends up through the head 11 to within approximately one-fourth inch of the top leaving a recess 16 into which is fitted the lower reduced section 18 of a bearing block 17. No alteration of the conventional machine is necessary. The reduced section 18 is of only slightly less diameter than the bearing recess 16 in which it freely rotates without any substantial radial movement or displacement.

As the machine comes from the manufacturer, the top of the head 11 is fitted with a name plate. This name plate is fastened to the head with a screw which threads into a threaded socket in the center of the shaft 12, such threaded socket being indicated at 23 in Figure 2. All that needs to be done to fasten the attachment of this invention to the machine is to remove this screw which holds the name plate to the head and to replace the same with the block 17 and the screw 21 provided with the attachment.

A central aperture 19 having a smooth bore is made centrally through the bearing block 17 in a substantially vertical or upright direction opening through upper and lower ends of the block 17. Such aperture receives the smooth shank 20 of a bearing bolt having a head 21 of greater diameter than the aperture 19 overlying the upper end of the block 17, and having a threaded lower end 22 which is screwed into the threaded socket 23 in the shaft 12. The bolt need not be turned down too tightly, the purpose being to hold the bearing block 17 captive to the machine part 12 without binding so that the bearing block 17 may be freely rotatable upon the machine about a substantially vertical axis which is coincident with the axis of rotation of the dial ring 13. In the bearing block 17 there is formed a lateral or radial smooth-bored socket 24 having a set screw 25 entering the same for the purpose of securing the inner end of the horizontal shank 26 therein. Together with diagonal and vertical shanks 27 and 28 respectively, the horizontal shank 26 combines to form a radial arm for either supporting or orienting the pusher member in position relatively to the circle of the points 14.

The vertical shank 28 contains an upper set collar 29 held in vertically adjusted position thereon by a set screw 30 and a lower set collar 31 likewise held in vertically adjusted position by a set screw 32. These set collars 29 and 31 confine in place a bearing sleeve 33 and a wheel 34, which is preferably of hard rubber formed with an annular slit 35 and formed with a frusto conical hub 36.

The attachment is also adaptable to the looping machine or Topping Machine manufactured by John Hepworth of Philadelphia, Pennsylvania.

In the use of the device, the attachment rolls around

the points of the needles, pushing the goods back up against the framework of the looper.

The arm comprising the parts 26, 27 and 28 swivels from the center post of the machine around the point dial of the machine. Hard rubber wheel 34 rides over the points 14 on the dial with the points entered into the slit or cut 35 which is preferably in the center of the wheel. When material or cloth is partially put on the points, the operator swings this wheel over the material and the wheel pushes the material all the way on the points, preventing drop stitches.

The provision of a central or intermediate slit or cut 35 in the pusher wheel 34 constitutes a novel form of pusher element over the single wheels for instance shown in the prior Patents 1,057,106, granted March 25, 1913 to W. C. Wright and 520,209, granted May 22, 1894 to Julius Kohler, in which the entire body of the wheels lies wholly below the points. That is, in these prior patents, the points lie wholly and entirely above the upper surface of the wheel. While the present invention is applicable to such wheels, the wheel 34 is substantially a double wheel of the prior patents embodied in a single element, providing body portions of the wheel 34 both below the points 14 and above the same so that the wheel 34 may not be moved up and down axially, being prevented thereby by the pins or points 14 which are entered into the slit or cut 35. This, of course, requires the assembly of the wheel 34 to the points 14 by moving the wheel 34 radially in toward the dial with the slit or cut 35 at point level.

It will also be noted, due to the entrainment of the lower reduced section 18 of the bearing block 17 in the recess of the fixed member 11 or 12 that the bearing block 17 cannot be assembled to the bearing recess 16 by a horizontal movement which would admit the points 14 to the slit or cut 35 in the wheel 34. In other words, while the wheel 34 due to its peculiar construction must be assembled to the points 14 by an essentially horizontal movement, the bearing block 17 must be assembled to the bearing recess 16 by an essentially downward vertical movement. Hence, provision has been made for separating the bearing block 17 from the wheel 34 at the lateral socket 24 and set screw 25. In other words, before the shank 26 is assembled to the bearing block 17, the bearing block 17 may be moved vertically down so that its reduced lower section 18 is properly entered into the bearing recess 16. The bolt 20 is thereupon put in place and suitably tightened without however interfering with the free rotation of the bearing block 17. The arm and the wheel 34, previously assembled together, may then both be moved in a horizontal direction radially toward the center of the machine with the then free end of the shank 26 at the level of the socket 24 and the slit or cut 35 in the wheel 34 at point level 14.

The assembly may also be made in the following order. The set screws 30 and 32 may be loosened so that the set collars 29 and 31 and the wheel 34 may be all slid off the lower end of the vertical shank 28. The shank 26 is fitted into the socket 24 and the set screw 25 tightened so that the radial arm and the bearing block 17 are assembled together. The wheel 34 is initially fitted with its slit or cut 35 to the points 14 in the position of Figure 2. Then the arm and the bearing block are brought down vertically so that simultaneously as the lower section 18 enters the bearing recess 16, the vertical shank 28 will pass through the aligned collars 29 and 31 and the intermediate wheel 34. The set screws 30 and 32 are thereupon tightened. The assembly is simpler if the wheel 34 is on the shank 28 first and then sliding the shank 26 horizontally into the bearing block 17 (which is already in place) making sure the wheel 34 is aligned with the points while this is being done.

The weight of the device falls upon the bearing block 17 in its recess 16 and the arm not only acts as an orienting member but also as a support for the pusher wheel

34. The wheel will normally descend by gravity upon the lower set collar 31, the lower end of the bushing 34 will engage this collar 31 and compensate for the wear incident to the rotary motion of the wheel 34. It is preferred to set the upper set collar 29 on the shank 28 slightly above the upper end of the hub 36 and bush 33. This will permit a slight rise and falling movement of the wheel 34 incident to its rotation around the circle of the points 14 to compensate for any unevenness in the circle of the points and to avoid binding of any of the parts.

It is preferred that the shank 28 shall be longer in a vertical sense than is required to form a shaft or spindle for the wheel 34 in order to provide a hand-hold whereby the arm may be manually grasped and freely rotated about the center post of the machine. Also the diagonal portion 27 of the arm may be utilized for this purpose. The diagonal section or shank 27 of course is for the purpose of connecting the upper end of the vertical shank 28 with the outer end of the horizontal shank 26 which must be at a higher level.

The double wheel 34 having body sections above and below the slit or cut 35 will be more effective to exert thrust upon the fabric 15 both above and below the points 14 whereby the fabric may be thrust home upon the points 14 and against the dial ring to the end that there will be no likelihood of the fabric escaping from the pins during the later operation of the machine.

For the Model "P" Sotco Looper, the following dimensions may be useful information.

The hard rubber wheel may be three inches in diameter with the base of the conical hub 36 one and one-half inches; the depth of the cut or slit 35 is five-eighths of an inch, while the width or height of the same is one-sixteenth of an inch. The internal bore of the bush 33 is one-half inch and this is preferably a bronze bushing. The depth or vertical dimension of the wheel 34 is one-half inch and the height or vertical dimension of the hub 36 is likewise one-half inch.

The length of the radial arm from the free end of the horizontal shank 26 to the vertical center line of the shank 28 is eleven inches. The height of the arm from the lower end of the shank 28 to the horizontal center line of the shank 26 is seven and one-fourth inches. The elbows or bends 37, 38 are at 45 degree angles. The arm as a whole is of half-inch cold rolled round stock.

The external diameter of the bearing block 17 is two inches and that of its lower reduced section 18 one and one-eighth inches. The height of the bearing block 17 exclusive of its lower section 18 is seven-eighths of an inch and the height of its lower section, three-sixteenths of an inch. The bore of the central aperture 19 is one-fourth inch.

Although I have disclosed herein the best form of the invention known to me at this time, I reserve the right to all such modifications and changes as may come within the scope of the following claims.

What I claim is:

1. In an attachment for a looping machine having a shaft, a dial mounted on said shaft and having a plurality of pins secured to the outer peripheral edge thereof, a bearing receiving said shaft in coaxial relation therewith, said attachment including an arm having a bearing member secured to the inner end thereof and rotatably interfitting with said bearing, a pusher member rotatably mounted on the outer end of said arm for planetary movement about said dial and having and annular slit formed therein for receiving said pins in interfitting relation therewith, the interfitting relation of said bearing with said bearing member and said pusher member with said pins preventing radial movement of said arm when said dial and arm are relatively rotated.

2. In an attachment for a looping machine having a shaft, a bearing for the shaft and a dial mounted on said shaft, said dial having pins secured to the outer peripheral edge thereof, said attachment comprising an arm, a pusher

member rotatably mounted on the outer end of said arm for planetary movement about said dial and having an annular slit formed therein for receiving said pins in interfitting relation therewith, a bearing member mounted on the inner end of said arm, said bearing member including means for engaging said bearing in interfitting relation and means for rotatably securing said bearing member to said shaft, thereby providing for relative rotation of said arm with respect to said dial, the interfitting relation of said engaging means with said bearing and said pusher member with said pins preventing radial movement of said arm when said attachment and dial are relatively rotated, and at least one of said members being

removable from said arm to permit assembly of said attachment to said looping machine.

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