May 30, 1967 L. F. SCRUGGS 3,321,818

SLUB CATCHER

Filed March 30, 1965

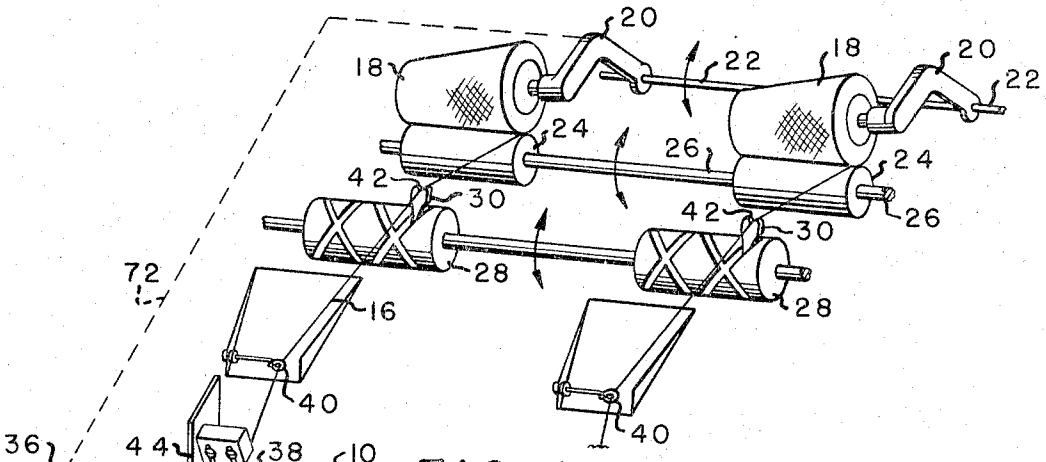
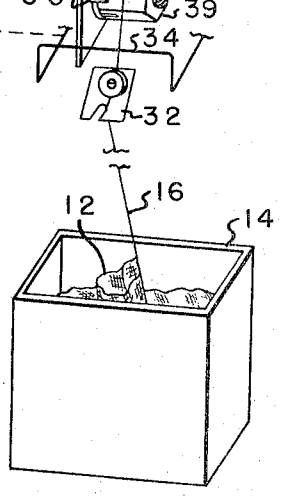


FIG.-1-



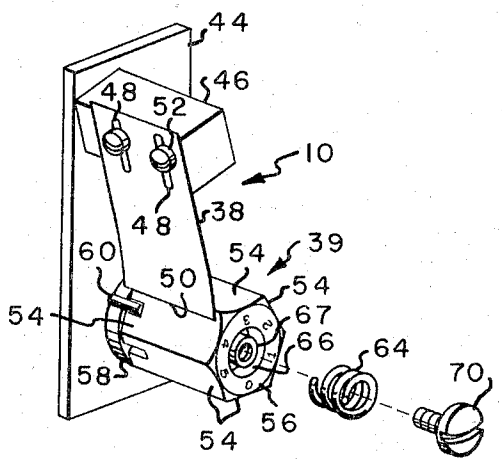


FIG.-2-

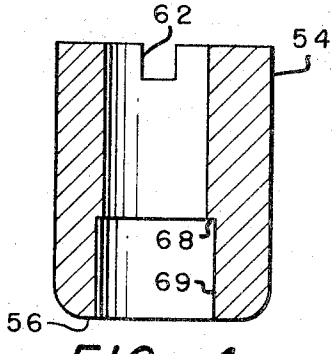


FIG.-4-

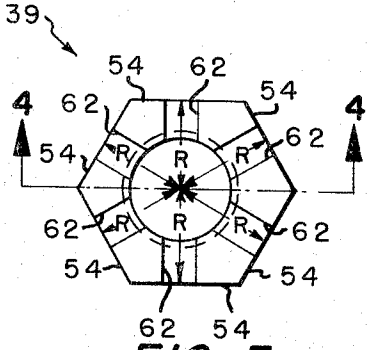


FIG.-3-

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SLUB CATCHER

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This invention relates generally to the winding of yarn and in particular to a slub catcher to sever the yarn being wound upon the detection of a slub in the yarn.

Prior to this invention numerous types of slub catchers have been used on winders to deactivate the winder and break the yarn being wound upon the detection of a slub or other defect in the yarn. This operation is necessary to prevent defects in the yarn which will show up as defects in the finished fabric made from the yarn being wound. These prior art slub catchers had one serious drawback in that every time a different diameter yarn was wound it was necessary to reset all the slub catchers on the winder for the particuler yarn to be wound. This resetting of the slub catchers was a slow, tedious time-consuming task since none of the prior art slub catchers provided a design which could be readily reset.

Therefore, it is an object of the invention to provide an inexpensive slub catched for a winder which can be readily reset for the winding of various yarns.

Another object of the invention is to provide a new and novel slub catcher which can be readily installed on existing equipment or can be manufactured as a factory item on new equipment.

A still further object of the invention is to provide an efficient relatively inexpensive slub catcher which can be readily readjusted for various yarn diameters.

Other objects and advantages of the invention will be clearly apparent as the specification proceeds to describe the invention with reference to the accompanying drawing in which:

FIGURE 1 is a schematic view of a winder incorporating the herein disclosed slub catcher;

FIGURE 2 is a blown-up view of the slub catcher with a portion thereof exploded;

FIGURE 3 is a bottom view of the slub catcher housing shown in FIGURE 3; and

FIGURE 4 is a cross section view taken on line 4—4 of FIGURE 3.

Looking now to FIGURE 1 there is shown schematically a typical winder modified to incorporate the new and improved slub catcher 10. For the sake of illustration I have shown only one complete winding position but it is within the scope of the invention to manifold as many positions as desired. Further for the sake of illustration the winder is shown winding tubular knit material 12 but it is within the scope of the invention to wind any desired yarn in any desired manner.

The tubular knit material 12 in which the yarn crimp has been set is placed in a suitable container 14 from which a strand of yarn 16 is guided to the yarn package 18. The yarn package 18 is rotably supported in arms 20 which are journaled to shaft 22. In operative position the yarn package 18 is driven by drive rolls 24 fixed to the shaft 26 which is driven by suitable drive means, not shown. Also connected to drive means, not shown, and synchronized in speed to the drive rolls are barrel cams 28 to traverse the yarn guide 30 to evenly distribute the unraveled yarn 16 onto the package 18.

In normal operation the yarn package 18 is driven by the drive roll 24 and wraps the yarn 16 thereon. The yarn 16, as it unravels from the tubular knit material 12 in the container 14, passes through and around a guide and tension control member 32 and over the stop motion lever 34 maintaining it in the down position, thereby

maintaining the stop motion device 36 deactivated. From the stop motion lever 34 the yarn 16 passes between blade 38 and slub catcher housing 39 on the slub catcher 10, through a pig tail guide 40, through a notch 42 in the traversing yarn guide 30 and onto the yarn package 18.

Looking now to FIGURES 2–4 the new and improved slub catcher 10 is shown in detail. The slub catcher 10 consists basically of four major parts, namely the support plate 44 which is mounted on the winder, blade support block 46 mounted on the plate 44, flexible blade member 38 secured to the block 46 and the slub catcher housing 39. Blade member 38 has elongated slots 48 therein so that the distance between the outer sides 54 of the housing member 38 and the bottom edge 50 of the blade 39 can be predetermined and set by the tightening of screws 52 to secure the blade to the block 46.

The slub catcher housing 39 is so designed to have a multiplicity of sides 54. In the preferred form of the invention a hexagon shaped housing member is employed. The housing 39 is so designed or milled so that the radius R (FIGURE 3) for each side 54 is different than the radius R for any of the other sides 54 so that the distance between the bottom edge 50 of the blade 38 and any respective side 54 will be different for each side when such side is placed in operative relationship to the blade 38. In the preferred form of the invention it is possible to have six settings without changing the position of the blade 38 with respect to the slub catcher housing 39. For the sake of convenience and identification each side is provided with a number from 1–6 which is placed on the end 56 of the housing 39.

To secure the housing in any desired position a spring loaded detent arrangement is provided. A collar member 58 is secured to the support plate 44. Connected thereto is a detent member 60 which engages any one of the six notches 62 in the side walls 54. To secure the housing 39 in any respective position a spring member 64 is placed in annular groove 66 abutting surface 68 and is secured therein by screw 70 causing the spring to bias the housing 39 against the detent 60 and the collar member 58. Groove 66 is located between screw receiving member 67 attached to collar 58 and the inside wall 69 of the housing 39.

In operation when it is desired to change the slub catcher in order to wind a different yarn it is only necessary to quickly run down the side of the winder frame and pull out each housing 39 against the bias of the spring 64, turn the housing to the side corresponding to the yarn to be run and reseat the notch of the desired side 54 onto the detent 60. The winder is now in the desired operating position in only a matter of seconds.

When the yarn is being wound, as pointed out previously, it passes upwardly from the tension control member 32 between the blade edge 50 and the desired side 54 of the housing 39. If a portion of the yarn is enlarged this enlarged portion will hit the blade 38 forcing it toward the desired side 54 and thereby cutting the yarn. When the yarn breaks, the stop motion lever 34 pivots upwardly since it is no longer held down by the yarn and actuates any suitable stop motion device, such as that schematically represented at 36 to cause linkage 72 to rotate the package 18 away from the drive rolls 24 thereby stopping the winding of the yarn. The operator can then remove the slub in the yarn and restart the winder.

If desired the herein disclosed slub catcher can be made into a latching type slub catcher. By definition latching means that when a slub is caught between the blade and the housing it continues to be pinched after the yarn has been broken. To modify the herein disclosed slub catcher to become a latching type it is only necessary to magnetize either the blade or the housing so that when a slub

pulls the blade down, the magnetic forces will hold the blade in engagement with the housing until such time that a dislodging force such as an air jet acts on the blade to break the magnetic attraction of the member.

It can readily be seen that for most winder operations it will be necessary to only set the blade once and then rotation of the slub catcher housing **39** will suffice for most yarns that will be run on any one winder. The herein disclosed slub catcher is very inexpensive to manufacture, easy to install, performs efficiently and can be readily readjusted when necessary.

Although I have described in detail the preferred embodiment of my invention I contemplate that many changes may be made without departing from the scope or spirit of my invention and I desire to be limited only by the claims.

That which is claimed is:

1. A slub catcher comprising: a cutter member, a polygon shaped member rotatably supported adjacent said cutter member with one side in operative relationship with said cutter member and spaced a predetermined distance therefrom, said polygon shaped member having at least one other side with a radius from the center of rotation of said member less than the smallest radial distance from the center of rotation of said polygon shaped member to any point on the surface of said one side and means operably associated with said polygon shaped member to allow selective rotation of said polygon shaped member to rotate said other side into operative relationship with said cutter member to provide a different predetermined distance between said cutter member and said other side.

2. The structure of claim **1** wherein said means includes means to bias and secure said polygon shaped member in any preselected position.

3. The structure of claim **2** wherein said biasing and securing means includes spring means to bias said polygon shaped member and a detent and notch arrangement to secure said polygon shaped member against rotation.

4. A slub catcher comprising: a cutter member, a polygon shaped member, support means supporting said cutter member a predetermined distance from one side of said polygon shaped member, said polygon shaped member having at least one other side which has a radius from the center of said polygon shaped member less than the smallest radial distance from the center of said polygon shaped member to any point on the surface of said one side, and means on said support means and said polygon shaped member to allow selection rotation of said polygon shaped member into a position with said other side in operative relationship with said cutter member.

5. The structure of claim **4** wherein said means includes a detent and notch arrangement.

6. The structure of claim **5** wherein said means includes a biasing means to bias said detent and notch into engagement.

7. The structure of claim **6** wherein said means includes a collar on said support means, said detent projecting from said collar toward said polygon shaped member and a notch is provided in each side of said polygon for engagement with said detent.

8. The structure of claim **7** wherein said polygon shaped member is a hexagon.

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