

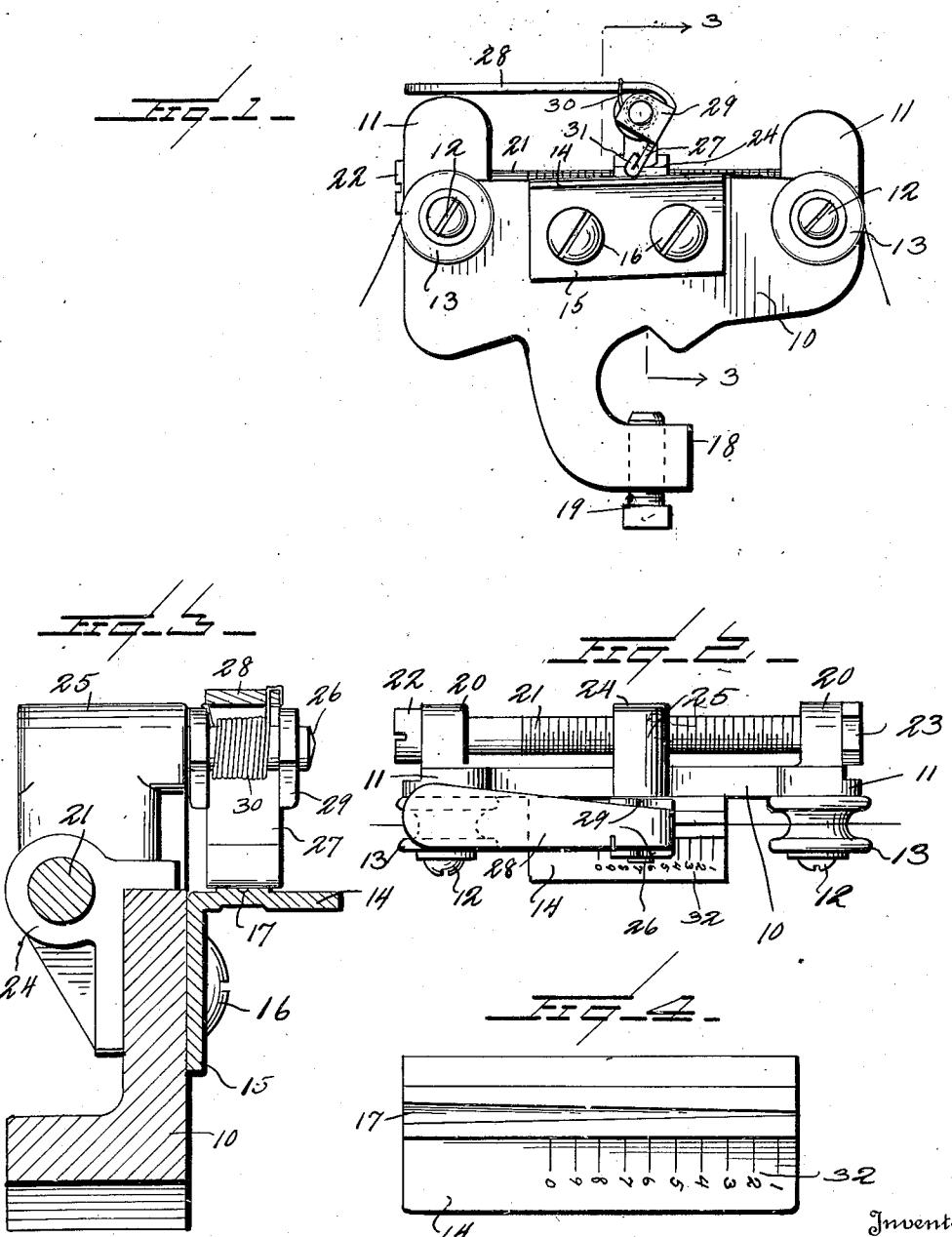
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YARN CLEANER OR SLUBBER

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## UNITED STATES PATENT OFFICE

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## YARN CLEANER OR SLUBBER

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This invention relates to yarn cleaners or "slubbers", that is, to devices for removing "slubs", thickened portions or bad places in the yarn while the yarn is being spooled or wound, such devices acting to prevent any thickened portion or "slub" from passing through an aperture through which the yarn is travelling and acting to instantly stop the yarn or thread and break it down, permitting the operator to break out the "slub" or thickened portion and retie the yarn in the usual well known manner.

More particularly, this invention relates to certain improvements on the yarn cleaner or "slubber" illustrated, described and claimed in my Patent No. 1,745,505 granted on February 4, 1930. In this patent, I disclosed a construction embodying a plate having a longitudinally extending groove through which the yarn traveled and having a closing member extending over the plate and across the groove, the groove being tapered both in width and depth from the entering end of the groove to the discharge end thereof and the closer being adjustable longitudinally of the groove to thus provide for a delicate adjustment of the yarn cleaner to all diameters of yarn within the range of the device, this adjustment being capable of being made either while the yarn is still or while the yarn is running through the cleaner.

The object of the present invention is to provide improved means for supporting a closing element in operative engagement with the grooved plate, this means being so formed that it will have a slight eccentric contact with the face of the plate so that a "slub" coming in contact with the closing element tends to pull it tighter to the plate without, however, decreasing the yarn sizing passage. This is particularly important in that in "slubbers" known to me, while two parallel members close together when a "slub" is caught and the yarn pinched off, and in doing this, the whole yarn sizing passage is contracted and decreased in size.

A further object is to provide a closing element operating in conjunction with the plate which closes over the tapered groove in the

direction of the travel of the yarn rather than moving across or approximately at right angles to the travel of the yarn and thereby having a shearing effect. This further is important in that in practice when "wild" or fluffy yarns are being run, a fiber is frequently caught and the yarn broken down in closing where no "slub" or other imperfection exists. In my device, the closing element tends to bunch the "wild" fibers as if these "wild" fibers were passing into a funnel and thus the yarn is carried through without breaking down the yarn.

A further object is to provide means which will prevent the closing element from being placed under such strain that the parts will become broken.

Other objects have to do with the details of construction and arrangement of parts as will more fully appear hereinafter.

My invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a front elevation of a yarn cleaner constructed in accordance with my invention;

Figure 2 is a top plan view of the cleaner shown in Figure 1;

Figure 3 is a section on the line 3—3 of Figure 1, and

Figure 4 is a top plan view of the grooved plate.

Referring to these drawings, 10 designates a base plate having at its opposite ends the upwardly extending lugs 11. Just below these lugs, the base plate carries the outwardly extending pins or screws 13 supporting the usual porcelain elements over which the yarn passes. Mounted upon the face of the base 10 is a plate 14 which is shown as having an angular flange or bracket 15 through which the attaching screws 16 pass. This plate, as shown in Figures 3 and 4, is provided with a longitudinally extending groove 17 which tapers both in width and depth from its entrance end to its discharge end, the yarn passing at all times through this groove. The lower end of the base plate 10 is provided with a clamping jaw 18 through which a set screw 19 passes whereby the device may be clamped upon any de-

sired portion of the spooling or winding machine.

Extending outward from the rear face of the base plate 10 are the two ears 20 and rotatably mounted in these ears is an adjusting screw 21 having relatively fine screw threads. One end of the screw has a head 22 whereby the screw may be turned and the other end carries the nut 23.

Also disposed against the rear face of the base 10 is a slide 24 which is formed to have sliding engagement with the rear face of the plate 10 and with the upper edge thereof. Through this slide, the screw threaded rod 21 passes and with it this rod has threaded engagement. The upper end of the slide carries a pin 26 extending over the plate 14 and slidably mounted upon this plate is the closing element 27. This has an angularly extending handle 28 and is formed with the upwardly extending ears 29 through which the pin 26 passes. A spring 30 engages the pin 26 and the portion 28 and acts to urge the closing member 27 downward toward the plate 14. The closing member in normal position extends downward and toward the entrance end of the groove 17 and bears against the upper face of the plate 14, which plate is preferably elevated on each side of the groove 17 as shown in Figure 3. Preferably the lower end of the closing member 27 is upwardly bent, as at 31, so that a rounded edge is provided bearing against the plate 14. The handle 28 extends slightly downward and extends over one of the lugs 11 at the entrance end of the device, this lug 11 constituting a stop preventing too great downward movement of the handle 28. The spring 30 is a very light spring so that the closing member 27 is urged only lightly down against the plate.

The use of this device will be obvious from what has gone before. The yarn is constantly moving through the groove 17 and so long as there is no "slub" or thickened portion on the yarn, the yarn will move freely and easily but when a "slub" is carried into engagement with the closing member 27, the "slub" will be broken out in an obvious manner. There is a tendency when a "slub" or imperfection strikes the rounded edge of the closing element to pull the closing element tighter to the plate but this is done without in any way decreasing the yarn sizing passage or cross sectional area of the groove 17. The coil spring 30 has no effect in breaking down the yarn but simply acts to provide a quick and positive closing and to hold the closing element in proper position on the shaft. The adjusting screw 21 permits of a very delicate adjustment to practically an infinite degree of the closing element longitudinally of the groove 17 and thus provides for operating on all sizes of yarn within the range of the groove 17. It will be thus seen that the groove 17 with the closing element provides

a wholly closed aperture which is variable in cross section by adjusting the slide through the instrumentality of the screw 21. If a very heavy yarn is being sized and a "slub" thereon should catch the closing element, this yarn would not spring the screw 26 and would not force the eccentric closing element past the center for the reason that the handle 28 extends over the member 11 which constitutes a stop so that this pull of a very heavy yarn which would otherwise have to be taken or supported entirely by the pin 26 will be transmitted also to the handle 28 and the lug 11 thus distributing the strain and preventing the parts from being damaged.

Preferably, the face of the plate 14 will be provided with graduations 32 by which the position of the slide or different diameters of yarn may be adjusted.

While I have illustrated a particular form of this mechanism I do not wish to be limited thereto as it is obvious that many details might be changed without departing from the spirit of the invention as defined in the appended claims.

What I claim is:—

1. A yarn cleaner including a plate having on its face a longitudinally extending yarn receiving groove extending entirely across the plate, and a coacting groove closing element pivotally mounted above said plate on an axis approximately at right angles to the groove and extending downward and toward the entrance end of the groove and bearing against the face of the plate, said closing element having a rounded edge face extending across the groove.

2. A yarn cleaner including a plate having on its face a longitudinally extending groove extending entirely across the plate, a closing element pivotally mounted above the plate on an axis approximately at right angles to the groove and extending downward and toward the entrance end of the groove and having its lower end in contact with the plate and extending entirely across the groove, and a handle on the closing element extending over the entrance end of the plate and lying approximately in a horizontal plane.

3. A yarn cleaner including a plate having on its face a longitudinally extending groove extending entirely across the plate, a closing element pivotally mounted above the plate on an axis approximately at right angles to the groove and extending downward and toward the entrance end of the groove and having its lower end in contact with the plate and extending entirely across the groove, a handle on the closing element extending over the entrance end of the plate and lying approximately in a horizontal plane, and a stop disposed slightly below the free end of the handle in its normal position and limiting downward movement.

4. A yarn cleaner including a plate having a longitudinally extending groove in its face, a closing element pivotally mounted on an axis parallel to the plate and at right angles to the groove and extending toward the plate and toward the entrance end of the groove the end of the closing element bearing against the face of the plate and extending across the groove and closing it, and a spring urging said closing element toward the plate. 70

5. A yarn cleaner including a plate having in its face a longitudinally extending yarn receiving groove, a closing element pivotally mounted on an axis parallel to the face of the plate and at right angles to the groove and extending toward the plate and toward the entrance end of the groove the end of said element bearing against the face of the plate and having a rounded end adjacent the plate and extending across the groove to close it, a light spring urging the closing element toward the plate, a handle mounted upon the closing element and extending approximately parallel to the plate, and a stop disposed in the path of the movement of the handle and limiting its movement toward the plate. 80

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6. A yarn cleaner including a plate having a longitudinally extending yarn receiving groove tapering longitudinally both in the width and depth and extending entirely across the plate, a closing element pivotally mounted on an axis parallel to the face of the plate and at right angles to the groove, the closing element extending toward the plate and toward the receiving end of the groove and having a rounded edge bearing against the face of the plate and extending transversely across the groove, the closing element being urged toward the plate, and means whereby the closing element may be adjusted longitudinally of said groove. 90

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7. A yarn cleaner including a plate having a longitudinally extending yarn receiving groove tapering longitudinally both in the width and depth and extending entirely across the plate, a closing element pivotally mounted on an axis parallel to the face of the plate and at right angles to the length of the groove, the closing element extending toward the plate and toward the receiving end of the groove and having a rounded edge bearing against the face of the plate and extending across the groove, the closing element being urged toward the plate, and means whereby the closing element may be adjusted longitudinally of said groove, including a slide carrying the closing element, and a micrometer screw engaging said slide. 100

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8. A yarn cleaner having a base, a plate supported upon the base, the face of the plate having a longitudinally extending yarn receiving groove tapering longitudinally both in width and depth and extending entirely across the plate, a slide mounted upon the base for movement parallel to the length of the groove, a micrometer screw mounted upon the base and engaging said slide, the base having a pin extending parallel to the grooved face of the plate and at right angles to the length of the groove, a groove closing element pivotally mounted upon said pin and extending toward the plate and toward the entrance end of the groove and having its free end extending across the groove, the closing element being urged toward the face of the plate. 110

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10. A yarn cleaner including a base having clamping means thereon, a plate supported upon the base at right angles thereto and having a longitudinally extending yarn receiving groove tapering both in width and depth from one end to the other and extending entirely across the plate, yarn guides mounted upon the base opposite the ends of said plate, a micrometer screw mounted upon the base, a slide mounted upon the base and with which the screw engages, the slide having an outwardly projecting pin, a closing element having ears through which the pin passes, the closing element extending downward and toward the face of the plate and having a rounded extremity bearing against the plate and extending across the length of the groove, the closing element having a handle extending parallel to the plate and toward the entrance end thereof, the base having a stop limiting the downward movement of the handle, and a spring surrounding the pin and operatively engaging the pin and the closing element to urge the closing element against the plate. 115

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11. A yarn cleaner including an element having on its face a longitudinal yarn receiving groove extending entirely across the element, and an element closing said groove, the closing element being pivotally mounted on the plate on an axis approximately right angles to the groove, and extending down-

ward and toward the entrance end of the groove at an inclination to the face of the plate and bearing against the face of the grooved element and extending across the groove.

In testimony whereof I hereunto affix my signature.

EARL C. RIPLEY

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