No. 646,023. Patented Mar. 27, 1900.

# H. M. GIRDWOOD.

## YARN CLEARER FOR WINDING MACHINES.

(Application filed Sept. 9, 1899.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

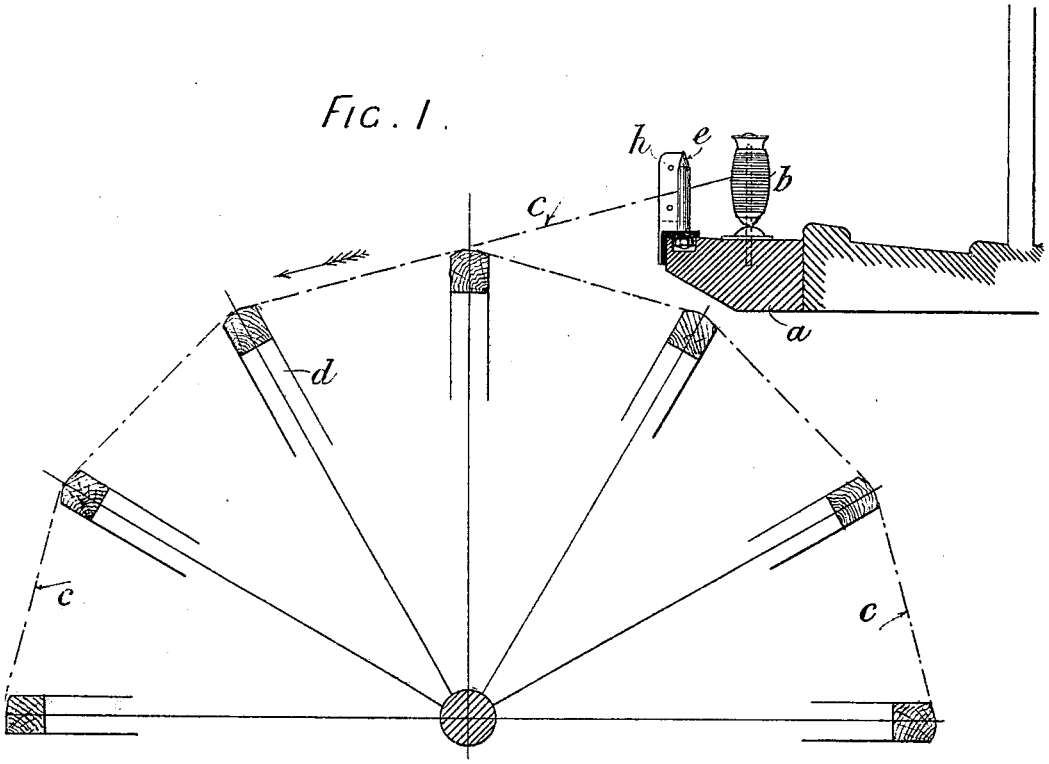
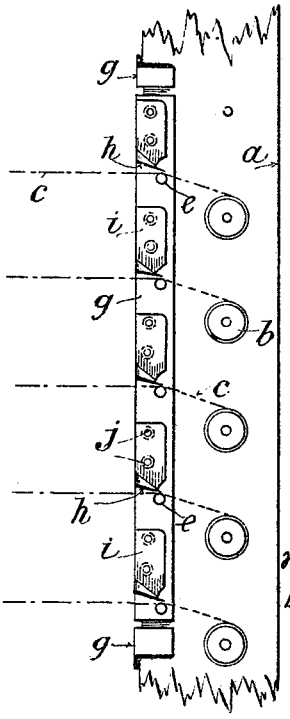



FIG. 2.

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## YARN CLEARER FOR WINDING MACHINES.

(Application filed Sept. 9, 1899.)

(No Model.) 2 Sheets—Sheet 2.

FIG. 3.

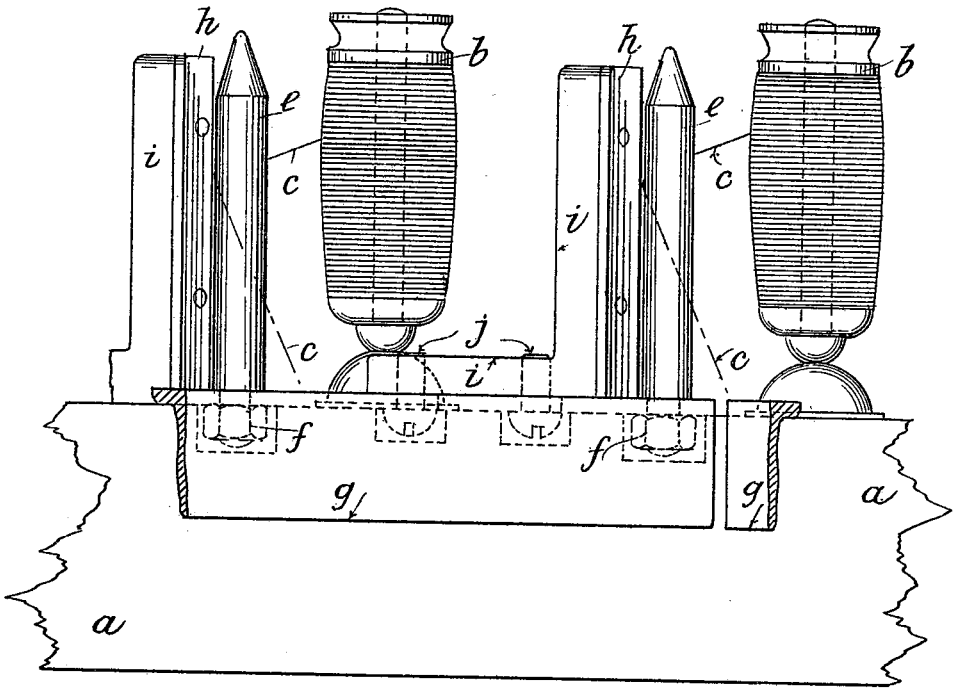
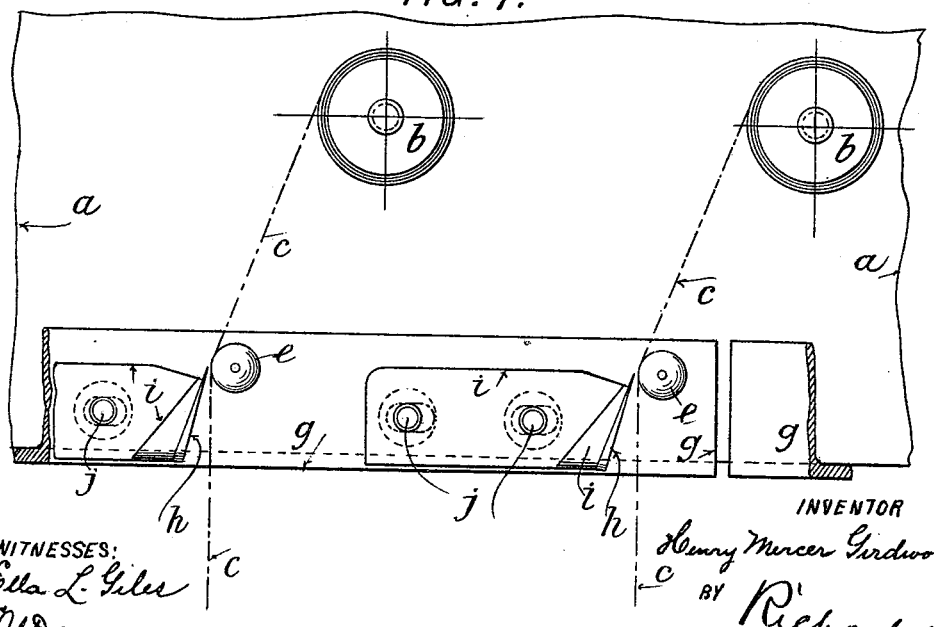



FIG. 4.

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# UNITED STATES PATENT OFFICE.

HENRY M. GIRDWOOD, OF SALFORD, ENGLAND.

## YARN-CLEARER FOR WINDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 646,023, dated March 27, 1900.

Application filed September 9, 1899. Serial No. 729,969. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY MERCER GIRDWOOD, flax-spinner, a subject of the Queen of Great Britain, and a resident of Broughton Flax Mills, Salford, in the county of Lancaster, England, have invented certain new and useful Improvements in or Relating to Spinning, Doubling, Reeling, and Winding Machines for Linen, Cotton, and other Yarn, of which the following is a specification.

My invention relates to improvements in spinning, doubling, reeling, and winding machines for linen, cotton, and other yarn; and the object of my invention is to make a more perfect yarn clearing or cleaning device, so that the yarn will not be chafed nor broken except when a piecing, lump, or other imperfection meets the clearer.

The clearers commonly in use are formed, say, of a piece of thin metal with a fine slot or two pieces forming a slot through which the yarn passes, the slot in the clearer being usually placed opposite the bobbin, cop, or fly from which the yarn is being drawn. In this construction the yarn meets both back edges of the metal at a right angle, and the consequence of this is that the slot must be very much wider than the thickness of the yarn to let it pass, and even then it chafes the yarn injuriously and also allows some of the piecings and lumps to pass through, thus lessening the value of the yarn. When the slot is made fine enough just to allow the yarn where smooth to pass through and so stop the piecings and lumps, the yarn chafes and is cut against the back edges of the slot. According to my invention I construct a clearer which obviates the defects mentioned and allows the two parts of the clearer between which the slot is formed to be set so close together that the yarn where smooth will only just pass freely, and consequently all piecings and lumps get cut, and this I effect by forming one part of the clearer of a stud or pin with a round or curved edge, over which round edge the yarn first passes. The other portion of the clearer consists of an adjustable piece of metal, which has a square or sharp edge and is set and secured as near as desired to the first-named piece.

In the accompanying two sheets of drawings, Figure 1 shows in cross-section part of a yarn-reeling machine with my improved clearer applied. Fig. 2 is a plan of part of the bobbin-rail, illustrating the arrangement of the improved clearers. Fig. 3 is an elevation, and Fig. 4 a plan, of part of the bobbin-rail, showing two bobbins and clearers full size.

In the views, *a* designates the bobbin-rail; *b*, the bobbins; *c*, the yarn, and *d* the swift, on which the yarn is reeled, as usual.

Each clearer consists of two parts—namely, a stud or pin *e*, secured by a nut *f* to a rail *g*, this rail being secured by bolts, screws, or other fastenings to the bobbin-rail *a*. The other part of the clearer consists of the blade or cutter *h*, riveted or otherwise secured to a bracket *i*, which is secured adjustably by screws *j* to the rail *g*, the screws passing through slots in the rails.

In order to make the bracket *i* adjustable, the screw-holes of the rail *g*, to which the bracket *i* is fastened, are slotted, so that the cutters *h* can be set by gages at the proper distance from the studs *e* for each number or lea of yarn, the heads of the screws *j* being, preferably, underneath, so that when the rail *g* is fastened to the bobbin-rail *a* the clearer cannot be altered by the operative.

As shown clearly in the drawings, the clearer is placed out of the direct line between the bobbin and the swift and so that the yarn *c* must bear against the rounded surface of the stud or pin *e* and only come in contact with the cutting edge of the blade *h* when piecings or lumps come along, when they are at once caught and the yarn broken.

To compensate for wear by the drag of the yarn, the rail *g* can be taken off, the nuts *f* slackened, and the studs *e* or any of them turned partly around to bring an unworn surface into position for the yarn to travel over, after which the nuts *f* are again tightened up and the rail *g* is replaced.

Having now particularly described and as-

certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim, and desire to secure by Letters Patent of the United States, is—

In a yarn-cleaner the combination with a stud having a rounded surface over which the yarn passes, of a cutting-blade arranged tangentially to said rounded surface, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

H. M. GIRDWOOD.

Witnesses:
H. B. BARLOW,
S. W. GILLETT.