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YARN CLEANER FOR SPOOLERS, SPINNING, OR SIMILAR MACHINES.  
APPLICATION FILED JULY 30, 1907.

915,300.

Patented Mar. 16, 1909.

FIG. 1.

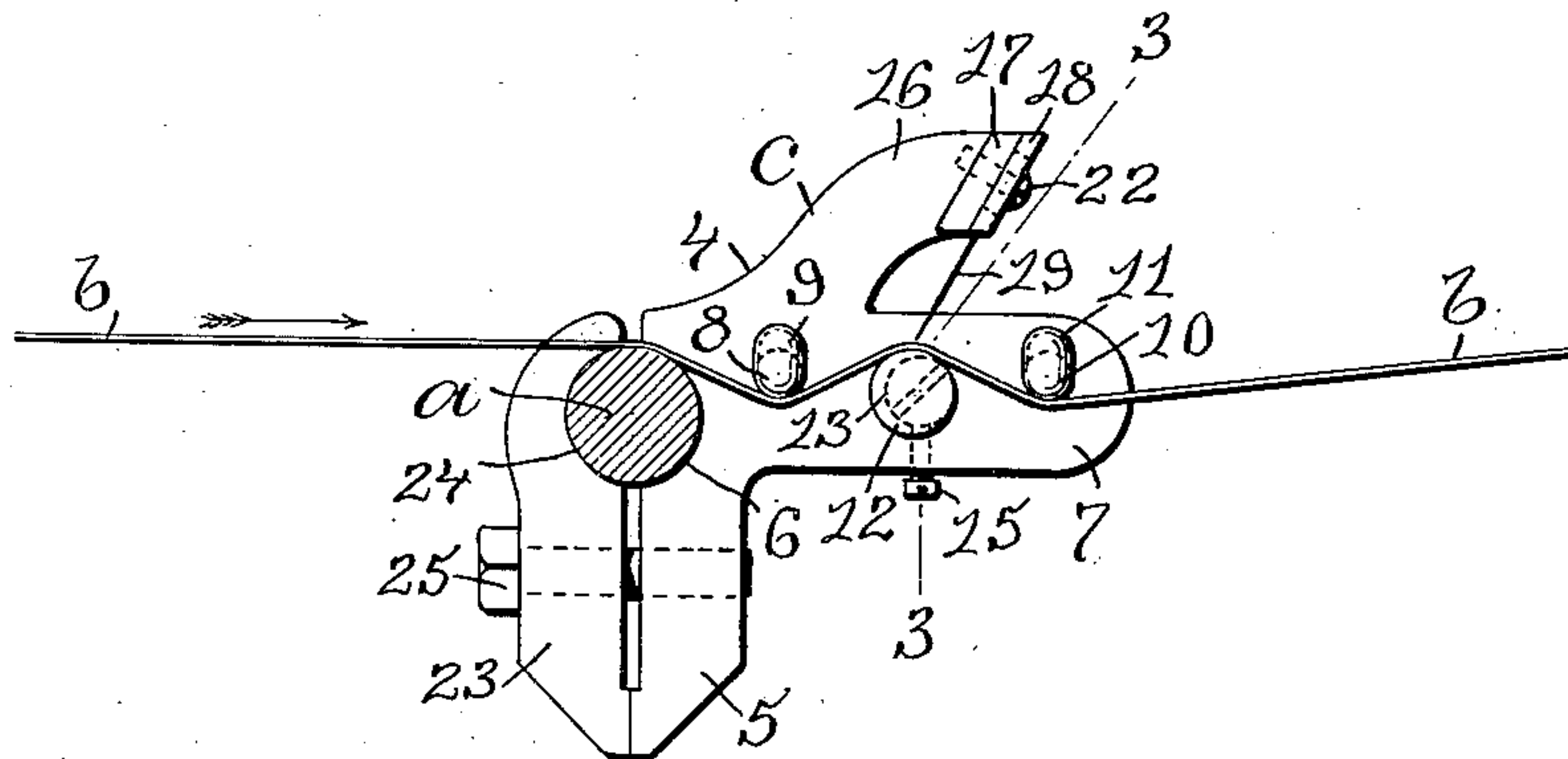


FIG. 2.

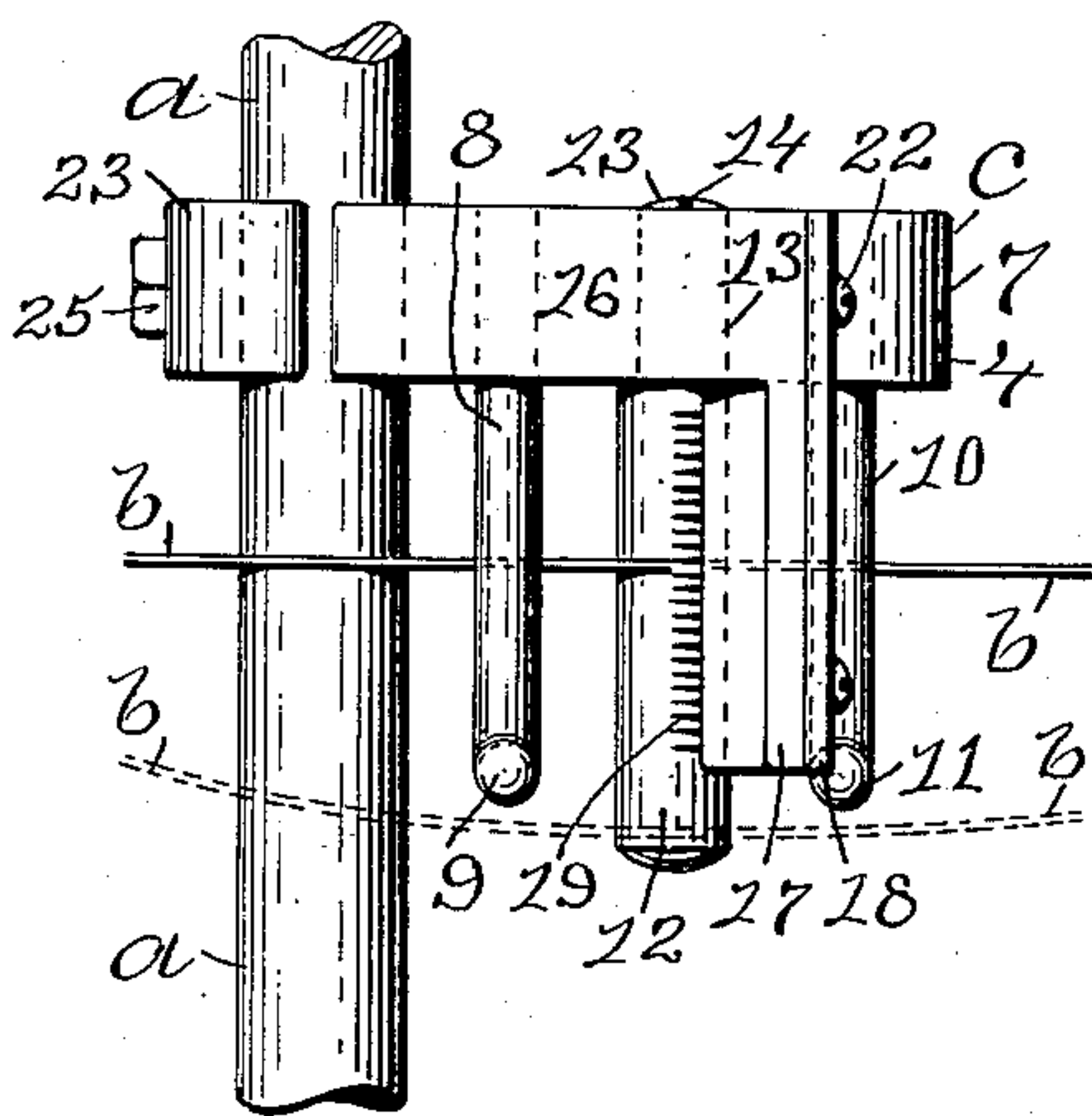
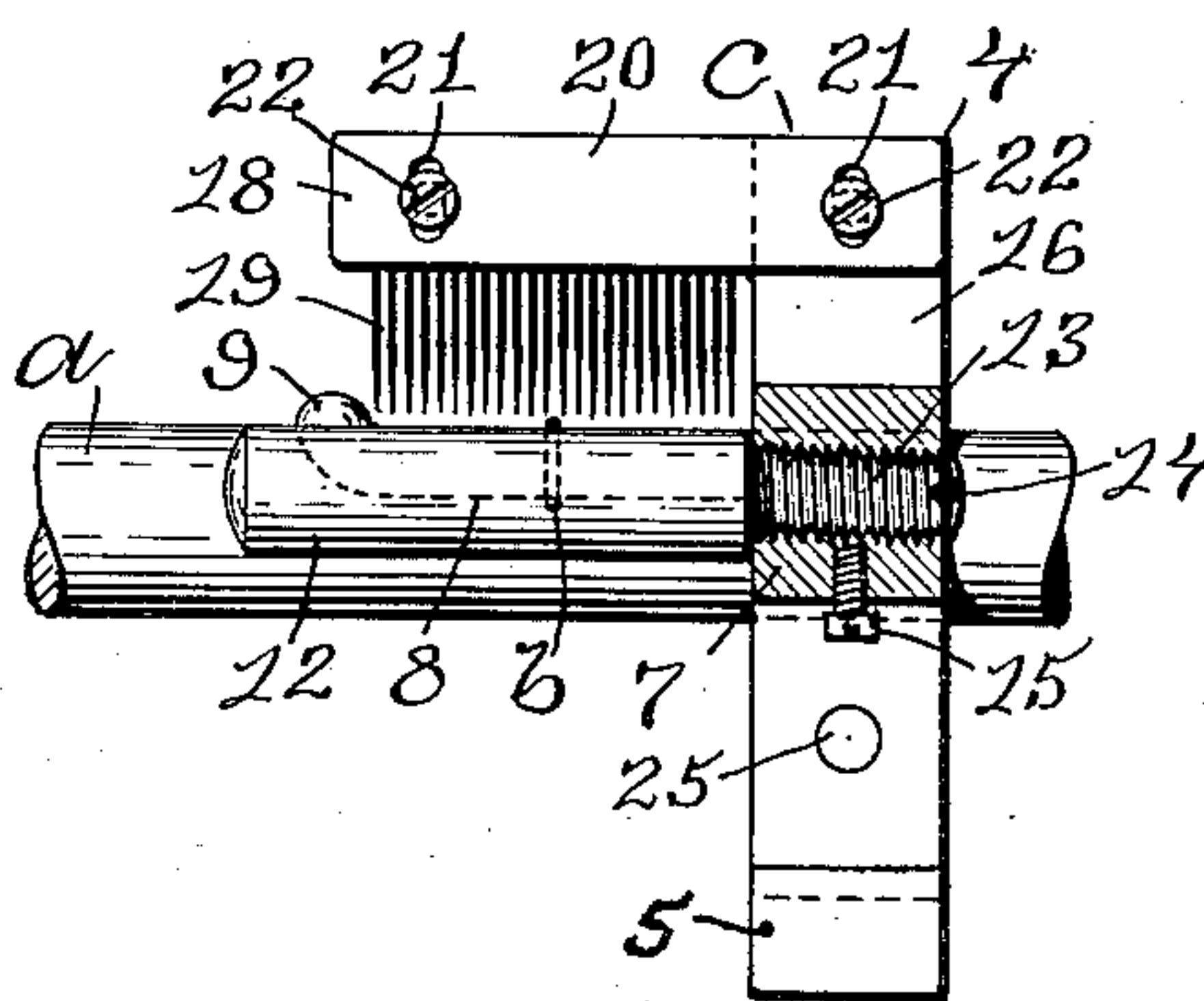


FIG. 3.



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# UNITED STATES PATENT OFFICE.

JAMES R. MACCOLL AND WILLIAM B. MACCOLL, OF PROVIDENCE, RHODE ISLAND.

YARN-CLEANER FOR SPOOLERS, SPINNING, OR SIMILAR MACHINES.

No. 915,300.

Specification of Letters Patent.

Patented March 16, 1909.

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*To all whom it may concern:*

Be it known that we, JAMES R. MACCOLL and WILLIAM B. MACCOLL, citizens of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Yarn-Cleaners for Spoolers, Spinning, or Similar Machines, of which the following is a specification.

This invention has reference to an improvement in spoolers, spinning or similar machines or more particularly to an improvement in yarn cleaners for removing the slubs, knots or similar enlargements liable to occur on yarn or roving.

The object of our invention is to improve the construction of a yarn cleaner for spoolers or similar machines, whereby slubs, knots or bunches on the yarn are removed from the yarn more completely than has heretofore been done, thereby improving the quality of the yarn or cloth.

The invention consists broadly in a yarn cleaner having means for so supporting slubs or beads during the passage of the yarn beneath the comb teeth that said teeth act to pick the slubs or beads from the yarn without necessarily acting directly on the yarn.

The invention also consists in the peculiar combination of the yarn guide and slub support with the comb whereby at the point at which the comb is designed to engage a slub or bead the yarn diverges from such point of engagement and, while the slub or bead is held by the teeth of the comb the yarn is drawn laterally as well as longitudinally away from the slub so held.

The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1 is a vertical side view of our improved yarn cleaner in its operative position on the traverse rod of a spooler and showing the yarn in the position it would assume in passing through the cleaner. Fig. 2 is a top plan view of the cleaner showing the yarn in its normal position in full lines and the position in which the yarn is placed to thread the cleaner in broken lines, and Fig. 3 is a vertical sectional view taken on line 3 3 of Fig. 1, showing the means of adjusting the central guide rod of the yarn cleaner.

In the drawings, *a* indicates a portion of a

traverse rod of a spooler or similar machine, *b* the yarn and *c* our improved yarn cleaner. The yarn cleaner *c* consists of a frame member 4 having a downwardly-extending jaw-shaped arm 5 in the upper edge of which is a semi-circular notch 6 for the traverse rod *a*, a horizontal arm 7 to the side of which is secured an inner guide rod 8 parallel with the traverse rod *a* and having an upwardly-rounded end 9, an outer guide rod 10 parallel with the inner guide rod and having an upwardly-rounded end 11, and a longer and heavier central guide rod 12 placed intermediate and parallel with the inner and outer guide rods and having a smaller eccentric screw-threaded end 13 which screws through the arm 7, has a transverse slot 14 in its end and is held in the adjusted position by a set screw 15 in the arm 7, as shown in Fig. 3.

An upwardly and outwardly extending curved bracket 16 is formed on the upper edge of the arm 7 and has the arm 17 set at right angles to the bracket 16, over the central guide rod 12 and parallel with the guide rod. This arm 17 is also set at an angle relative to a vertical line, and a comb 18 having the needle teeth 19 and the back 20 in which are the vertical slots 21 adjacent the ends of the back, is adjustably secured to the inclined face of the arm 17 by the screws 22 which extend through the slots 21 in the comb and screw into the arm 17, as shown in Figs. 1 and 2, and a jaw-shaped member 23 having a semi-circular notch 24 for the traverse rod *a* is secured to the jaw-shaped arm 5 by a fastening bolt 25 which extends through a hole in the jaw-shaped member 23, screws into the arm 5 and clamps the yarn cleaner *c* to the traverse bar *a*, as shown in Fig. 1.

The yarn cleaner *c* is clamped to the traverse bar *a* by the bolt 25 in a position to bring the guide rods 8, 10 and 12 on a horizontal line, as shown in Fig. 1. The yarn *b* is threaded through the cleaner *c* by placing the yarn over the end of the central guide bar 12, as shown in broken lines in Fig. 2, when the draft on the yarn will pull the same under the curved ends 9 and 11 of the guide rods 8 and 10 and into its normal central position, as shown in full lines in Figs. 1 and 2. The comb 18 is adjustable on the arm 17 and held in the adjusted position by the screws 22, and the central guide rod 12 is adjusted to raise or lower the yarn by turning



the guide rod with a screw driver until the yarn just clears the points of the teeth 19 on the comb 18 and held in the adjusted position by the set screw 15, as shown in Fig. 3.

5 The yarn *b* moving in the direction of the arrow, as shown in Fig. 1, passes over the traverse bar *a*, under the inner guide rod 8, over the central guide rod 12, just clearing the points of the teeth 19 on the comb 18 and  
10 then under the outer guide rod 10. The guide rods act as a slight tension on the yarn, stretching the yarn over the central guide rod, and when a slub, knot or bunch of any kind occurs in the yarn, it is effectively re-

15 moved by the teeth 19 on the comb 18.

Attention is called to the positions of the parts, as shown in Fig. 1, in which the comb 18 is inclined to the path of the yarn and the comb teeth extend tangentially with respect to the periphery of the guide 12 whereby as the yarn passes over the guide 12 it is directed upward toward the points of the comb teeth as a result of which the slubs or beads carried by the yarn are so supported  
20 in their passage over said guide 12 that, approximately as the slubs are engaged by the points of the comb teeth, the thread or yarn diverges from the slubs or beads whereby the slubs or beads are, in effect, picked up by  
30 the comb teeth from the periphery of the guide 12 and said comb teeth do not necessarily effect a combing engagement with the thread or yarn. By this peculiar cleaning action the thread or yarn is subjected to  
35 comparatively little strain by the comb teeth, and said teeth are adapted to receive and retain successive slubs, fibers or beads, those first taken by said teeth being forced upward on the teeth by the succeeding slubs.  
40 The central guide rod 12 forms a support on which the yarn passing thereover may move laterally as the diameter of the spool for receiving the yarn increases with the added layers of yarn wound thereon. In this lateral movement of the yarn it is brought constantly beneath a clean portion of the comb 18 and, if a bead or slub carried forward by the yarn is engaged by the comb teeth, such lateral movement tends to disengage the  
45 yarn from said slub or bead, whereas, if the yarn followed one course, the slub or bead engaged by the comb teeth might act to engage the loose fibers carried forward by the yarn until the accumulated fiber effects the  
50 breaking of the yarn.

It is evident that our improved yarn cleaner may be used on spoolers, spinning frames or similar machines and that the comb 18 may be set at any angle desired  
60 without materially affecting the spirit of our invention.

It is obvious that this improved cleaner may be used to clean other materials than those known specifically as yarn, roving etc.  
65 The extension of the support across the path

of the material to be cleaned and the combination therewith of the comb or cleaning element having a series of teeth extending at an angle with said support and having the points of said teeth arranged in a line parallel to said support may be advantageously utilized in cleaning other materials.

Having thus described our invention, we claim as new and desire to secure by Letters Patent;—

1. A yarn cleaner comprising a comb fixed with reference to the movement of the material to be cleaned, and means for guiding said material in a path diverging from the direction in which the comb teeth extend  
80 said guiding means extending laterally parallel to a plurality of said comb teeth and transversely to the path of the yarn whereby the yarn may move laterally with respect to said row of teeth as and for the purpose  
85 described.

2. A yarn cleaner comprising a yarn guide extending transversely of the path of the yarn and having a surface adapted to press outward slubs from yarn passing over said  
90 guide, and a series of slub engaging devices so arranged with reference to said yarn guide that slubs pressed outward thereby from the yarn may be engaged and retained while the yarn is free to move laterally of such engaged slub as said yarn moves forward.

3. A yarn cleaner comprising an inclined comb fixed with relation to the movement of the yarn to be cleaned, a yarn guide having an eccentrically disposed shaft, and supporting means having a bearing in which said shaft is journaled.

4. A yarn cleaner comprising a pair of longitudinal yarn guides, a cylindrical yarn guide and support located between and parallel to said first mentioned guides, and a comb cooperating with said cylindrical guide and support.

5. A yarn cleaner comprising a pair of guide wires having curved ends, a central guide parallel with said first mentioned guides and extending beyond the curves of said ends and a comb cooperating with said central guide and extending at an inclination to the path of yarn guided by said  
115 guides.

6. A yarn cleaner comprising a comb, means on which the comb is adjustable for supporting said comb, and yarn guiding means, including a slub supporting member,  
120 for guiding yarn toward the ends of the comb teeth in a path slightly inclined to the extension of said teeth and for guiding said yarn laterally away from said teeth after the yarn passes the point of approximate intersection with said teeth.

7. A yarn cleaner comprising a longitudinal yarn guide and support, means for exerting a tension on the yarn passing over said support while permitting the lateral move-  
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ment of the yarn, and a comb having teeth extending toward the periphery of said support.

8. In a yarn cleaner for spoolers or similar machines, a frame member adapted to be secured to the traverse rod of the machine, a series of guide rods secured to the frame member parallel with the traverse rod, a comb on the frame member above and parallel with the guide rods and means for adjusting the comb relative to the guide rods.

9. In a yarn cleaner for spoolers or similar machines, a frame member adapted to be secured to the traverse rod of the machine, a series of three guide rods secured to the frame member parallel with the traverse rod, a comb on the frame above and parallel with the center guide rod and means for adjusting the center guide rod relative to the comb.

10. In a yarn cleaner for spoolers or similar machines, a frame member adapted to be secured to the traverse rod of the machine, a series of three guide rods secured to the frame member parallel with the traverse rod, a comb on the frame member above and parallel with the center guide rod, means for adjusting the comb relative to the center guide rod, and means for adjusting the center guide rod relative to the comb.

11. The combination with the traverse rod of a spooling or similar machine, of a yarn cleaner comprising a frame member adapted to be detachably secured to the traverse rod, a series of three guide rods secured to the frame member parallel with the traverse rod, a comb on the frame member set at an angle to a vertical line, above and parallel with the center guide rod, means for adjusting the comb relative to the center guide

rod, means for securing the comb in the adjusted position, means for adjusting the center guide rod relative to the comb, and means for securing the center guide rod, in the adjusted position.

12. In a yarn cleaner for spoolers or similar machines, a frame member 4 having a jaw-shaped arm 5 with a semi-circular notch 6, an arm 7 to the side of which is secured at right angles an inner guide rod 8 having an upwardly-rounded end 9, an outer guide rod 10 having an upwardly-rounded end 11, and a longer central guide rod 12, having an eccentric screw-threaded end 13 screw-threaded into the arm 7, a bracket 16 formed on the upper edge of the arm 7 and having the arm 17 at right angles to the bracket 16 and set at an angle vertically, a comb 18 having the teeth 19 and the back 20 adjustably secured to the inclined face of the arm 17, a jaw-shaped member 23 having a semi-circular notch 24, a fastening bolt 25 which extends through a hole in the jaw-shaped member 23 and is screw-threaded into the jaw-shaped arm 5, means for adjusting the comb 18, means for securing the comb in the adjusted position, means for turning the central guide rod 12 to adjust the same, and means for securing the central guide rod in the adjusted position, as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES R. MACCOLL,  
WILLIAM B. MACCOLL.

Witnesses:

ADA E. HAGERTY  
J. A. MILLER.