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E. COTTAM ET AL
CONDENSER FOR TEXTILE FIBERS

2,621,376

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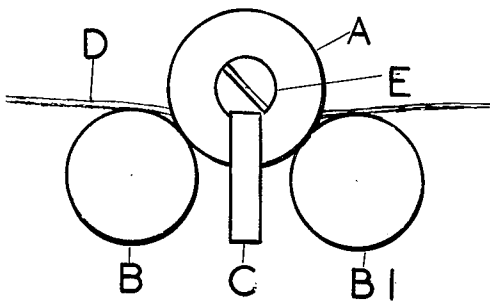


FIG. 1

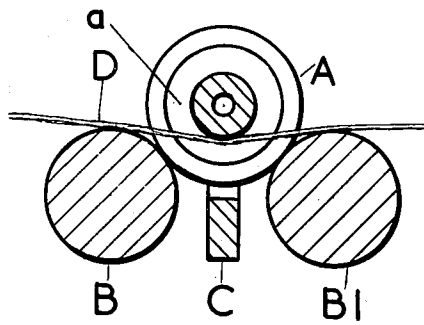


FIG. 2

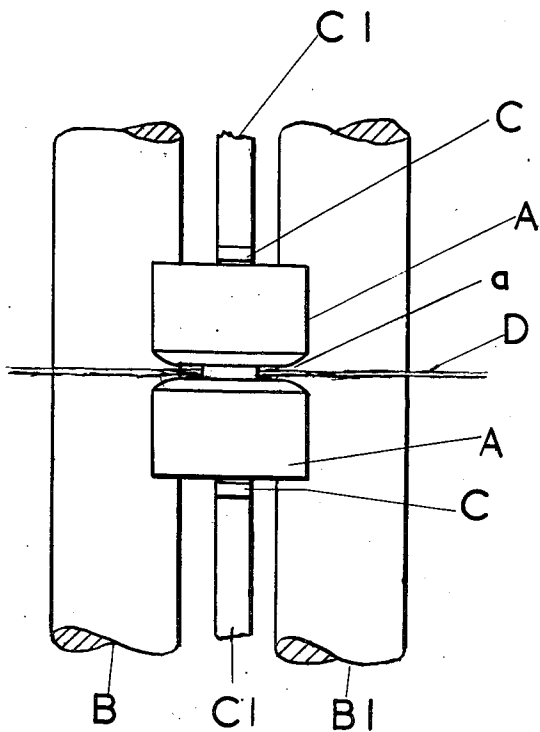


FIG. 3

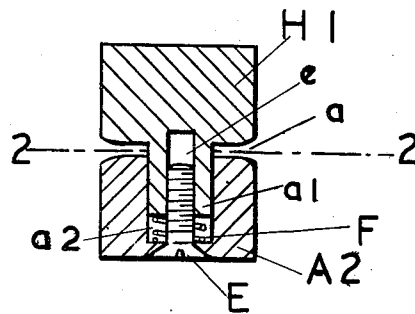


FIG. 4

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UNITED STATES PATENT OFFICE

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CONDENSER FOR TEXTILE FIBERS

Eric Cottam and Ronald Berresford Cottam,
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2 Claims. (Cl. 19—157)

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This invention relates to improvements in devices for condensing collections of textile fibres such as slivers or rovings and is particularly applicable for condensing slivers between the drafting rollers of textile spinning, doubling and similar machines.

The fibre condensing device according to the invention comprises a roller having a bell mouthed groove around its periphery into which groove the fibres enter, the roller being supported on two driven rollers which rotate at the same surface speed and being reciprocated axially so that the groove has a to and fro movement at right angles to the direction of travel of the fibres.

The invention is illustrated in and will be described with reference to the accompanying drawings, in which—

Fig. 1 is an end elevation of the condensing device,

Fig. 2 is a transverse section on line 2—2 of Fig. 4,

Fig. 3 is a plan, and

Fig. 4 is a longitudinal section of the grooved roller.

The condensing device consists of a roller A, preferably of metal or a synthetic resin such as a phenol formaldehyde condensation product having a peripheral groove *a* of bell mouthed shape in cross section and two supporting rollers B and B¹ on which the roller A rests and by which it is rotated through contact therewith. The rollers B and B¹ are driven so that they rotate at the same surface speed and are preferably fluted.

The diameters of the three rollers A, B and B¹, and the depth of the groove *a* are so proportioned and the axes of the three rollers are so disposed that the sliver or like collection of fibres D will be caused to take an angular path when passing through the device and will consequently be constrained to move towards the bottom of the groove *a* as shown in Fig. 2 and since the groove is narrowest at its bottom portion the fibres will be condensed or consolidated to an extent depending on the width of the bottom portion of the groove.

So that the width of the groove *a* in the roller A may be adjustable to suit various sizes of sliver and/or their degree of condensation the roller A is formed in two parts A¹ and A² as shown in Fig. 4. The part A¹ is formed with a hollow cylindrical portion *a*¹ which is a sliding fit in a corresponding recess *a*² in the part A². A compressing spring F tending to separate the two parts is arranged between the end of the portion *a*¹ and the bottom of the recess *a*² and a screw E

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which engages a screw thread *e* in the portion *a*¹ serves to adjust the relative positions of the two parts A¹ and A² and consequently the width of the groove *a*.

The roller A is given a small longitudinal reciprocating movement parallel to the axes of the rollers B and B¹ by a forked member C which makes contact with each end of the roller and is carried by a reciprocating bar C¹ so that the groove *a* in the roller will follow the lateral or transverse movement of the sliver or other collection of fibres.

A textile fibre condensing device according to the invention is particularly applicable for use between the drawing rollers of a drafting head of a spinning or doubling frame but it is to be understood that its use is not limited to such machines and that it can be employed in other machines where condensing or consolidation of a collection of textile fibres is required.

We claim:

1. A device for condensing collections of textile fibres comprising a roller formed with a peripheral groove of bell mouthed shape in cross section and two driven rollers rotating at the same surface speed which support and rotate the grooved roller, the diameters of the three rollers and the depth of the groove in the first roller being so proportioned and the axes of the three rollers being so disposed that the collection of fibres is caused to take an angular path when in the groove and will consequently be constrained to move towards the bottom of the latter, the grooved roller being formed in two portions, the relative positions of which can be varied to adjust the width of the groove.

2. A device for condensing collections of fibres as in claim 1, having means for reciprocating the grooved roller longitudinally relative to the two supporting rollers.

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The following references are of record in the file of this patent:

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