

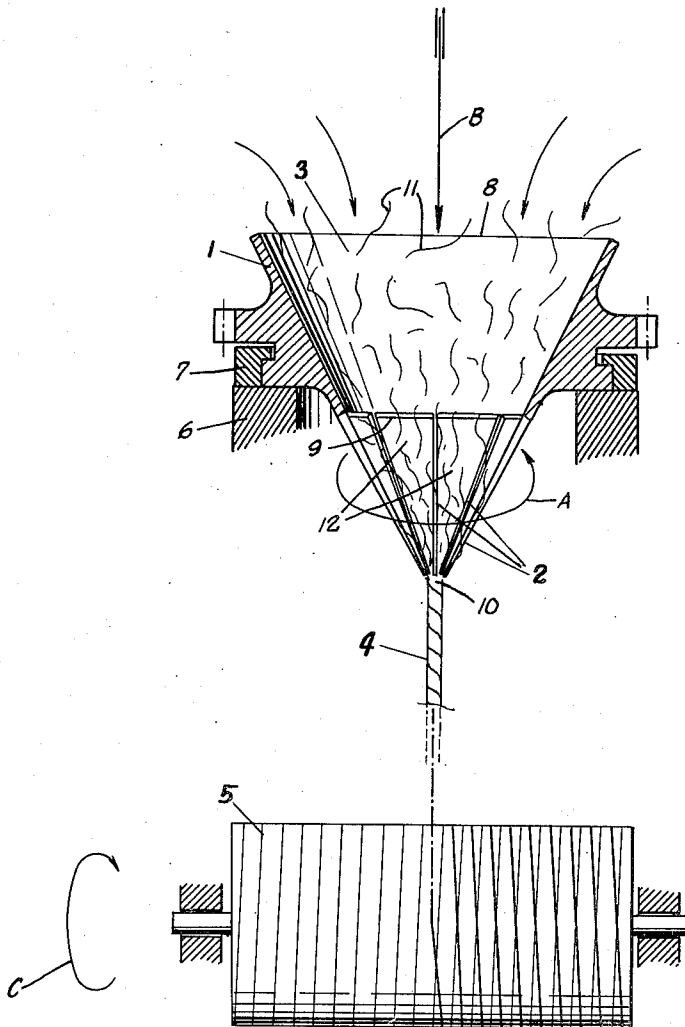
June 12, 1962

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3,038,294

CONTINUOUS SPINNING OF YARNS DIRECTLY FROM LOOSE FIBRES

Filed Jan. 9, 1959



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3,038,294

CONTINUOUS SPINNING OF YARNS DIRECTLY FROM LOOSE FIBRES

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Filed Jan. 9, 1959, Ser. No. 785,851

4 Claims. (Cl. 57—58.93)

This invention relates to a process and apparatus for the continuous manufacture of yarn or rove directly from loose fibres. Although various apparatus for the continuous manufacture of yarn are already known, these do not function reliably and do not result in reliable spinning.

An object of the present invention is to provide a process and apparatus by which these disadvantages may be reduced or eliminated.

According to the present invention I provide a process for the continuous manufacture of yarn or rove directly from loose fibres, in which the fibres are directed into a rotating basket by an air or liquid stream, and compacted in said basket.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying diagrammatic drawing which shows a side view of apparatus for carrying out the process according to the invention.

Referring to the drawing there is shown a funnel-shaped basket 3 mounted on a suitable support 6 for rotation about its longitudinal axis in a bearing 7 in the direction shown by the arrow A. The basket defines a conical space and consists of a solid wall portion 1 having an inlet opening 8 at the largest transverse dimension at one end thereof. The opposite end of the solid wall portion 1 of the basket 3 has a beveled edge 9. At spaced intervals along the beveled edge 9, ribs or needle-like rods 2, preferably integral with the solid portion 1, extend in a direction away from the inlet opening 8 and converge toward but just short of the longitudinal axis of the basket, defining an outlet opening 10 at their free ends.

Loose fibers 11 are directed into the rotating basket 3 from a supply source (not shown) in a fluid stream either in a compressed air stream or in a liquid stream, in the direction of the straight arrow B, and in the passage through the basket 3 they collide with the ribs or needle-like rods 2 thereof with the result that the fibers 11 are compacted and subsequently twisted into yarn or rove 4 by rotation of the basket 3. The fibers are compacted to an extent that they do not fall through the wide spaces 12 separating the ribs 2 but emerge in a continuous yarn or rove 4 from the outlet opening 10. The fluid stream passes through the spaces 12 out of the spinning basket 3 and may be collected for re-use by any suitable means (not shown). The twisted yarn or rove 4 is then wound in criss-cross fashion onto a bobbin 5 in the direction of the arrow C.

The invention may conveniently be applied, for example, to the spinning of glass staple fibres. The fibres are admitted to the basket and directly spun into the required yarn or rove.

I claim:

1. For use in an apparatus for the continuous manufacture of yarn from loose fibers, a basket rotatable about its longitudinal axis having a frusto-conical shape and

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formed with an inlet opening at the larger end thereof and an outlet opening at the smaller end thereof, said basket having a continuous annular side wall portion in the region of said larger end and a portion in the region of said smaller end comprising a plurality of elongated ribs spaced from each other and converging toward said outlet opening, the spaces between said ribs freely communicating during use with the surrounding atmosphere so that when loose fibers are continuously supplied to said basket in a fluid stream through said inlet opening while said basket is being rotated about its longitudinal axis, the fibers are compacted and twisted in said basket and may be drawn off as continuous yarn through said outlet opening, while the fluid stream is freely dissipated between said spaced ribs into the surrounding atmosphere.

2. In an apparatus for the continuous manufacture of yarn from loose fibers, in combination, support means, a basket rotatably mounted on said support means having a frusto-conical shape and formed with an inlet opening at the larger end thereof and an outlet opening at the smaller end thereof, said basket having a continuous annular side wall portion in the region of said larger end and a portion in the region of said smaller end comprising a plurality of elongated ribs spaced from each other and converging toward said outlet opening, the spaces between said ribs freely communicating during use with the surrounding atmosphere so that when loose fibers are continuously supplied to said basket in a fluid stream through said inlet opening while said basket is being rotated about its longitudinal axis, the fibers are compacted and twisted in said basket and may be drawn off as continuous yarn through said outlet opening, while the fluid stream is freely dissipated between said spaced ribs into the surrounding atmosphere.

3. In an apparatus for the continuous manufacture of yarn from loose fibers, in combination, support means; a basket rotatably mounted on said support means having a frusto-conical shape and formed with an inlet opening at the larger end thereof and an outlet opening at the smaller end thereof, said basket having a continuous annular side wall portion in the region of said larger end and a portion in the region of said smaller end comprising a plurality of elongated ribs spaced from each other and converging toward said outlet opening, the spaces between said ribs freely communicating during use with the surrounding atmosphere; and means for drawing the yarn from the outlet end of said basket so that when loose fibers are continuously supplied to said basket in a fluid stream through said inlet opening while said basket is being rotated about its longitudinal axis the fibers are compacted and twisted in said basket and are drawn off as continuous yarn by said last named means through said outlet opening while the fluid stream is freely dissipated between said spaced ribs into the surrounding atmosphere.

4. In an apparatus for the continuous manufacture of yarn from loose fibers, in combination, support means; a basket rotatably mounted on said support means having a frusto-conical shape and formed with an inlet opening at the larger end thereof and an outlet opening at the smaller end thereof, said basket having a continuous annular side wall portion in the region of said larger end and a portion in the region of said smaller end comprising a plurality of elongated ribs spaced from each other and converging toward said outlet opening, the spaces be-

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tween said ribs freely communicating during use with the surrounding atmosphere; and a rotating bobbin for drawing the yarn from the outlet end of said basket so that when loose fibers are continuously supplied to said basket in a fluid stream through said inlet opening while said basket is being rotated about its longitudinal axis the fibers are compacted and twisted in said basket and are drawn off as continuous yarn by said rotating bobbin through said outlet opening while the fluid stream is freely dissipated between said spaced ribs into the surrounding atmosphere.

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